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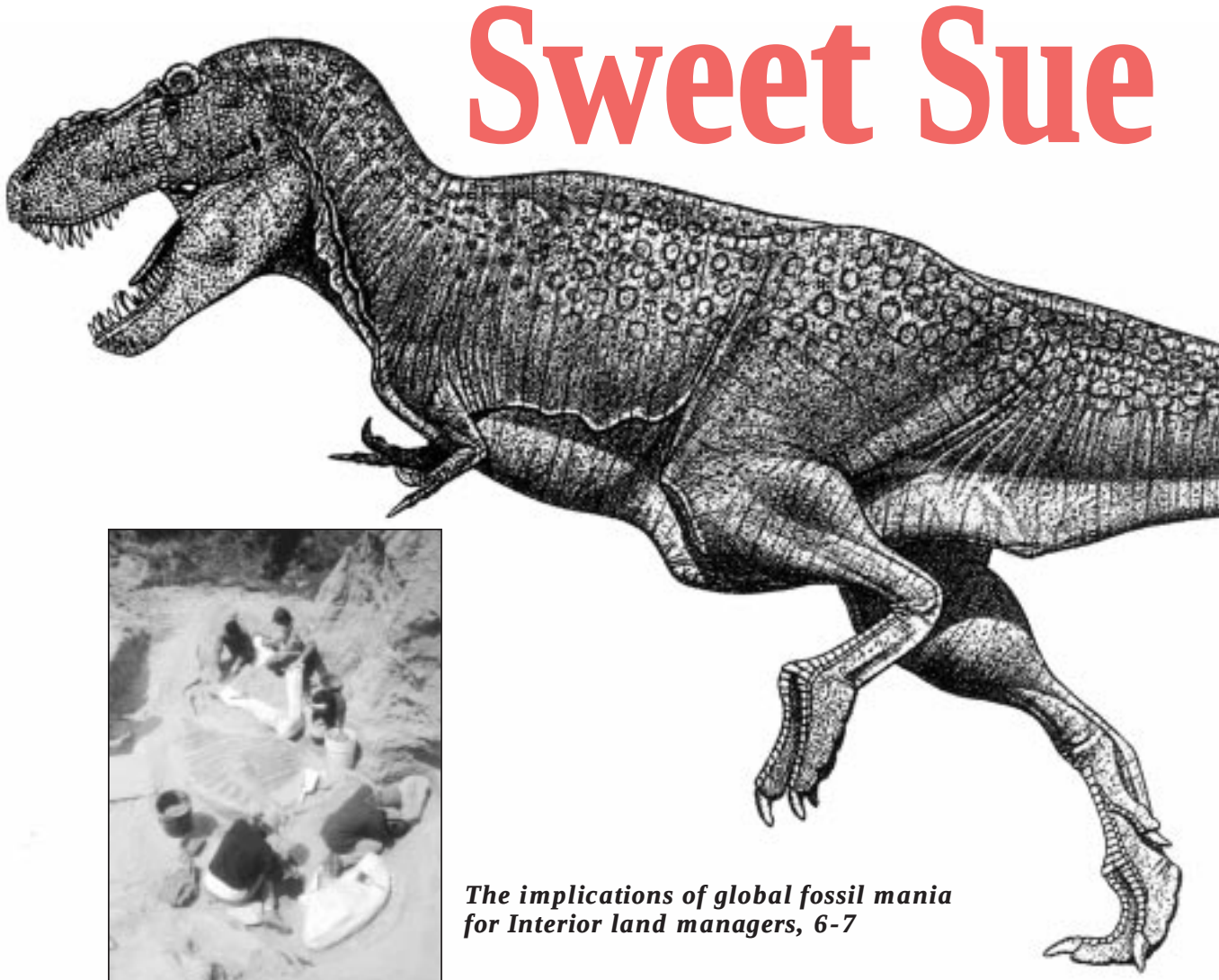
Not So Sweet Sue



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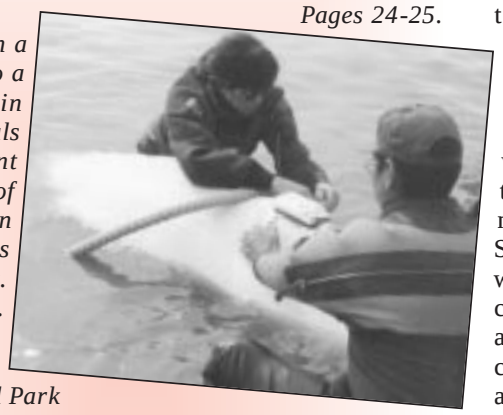
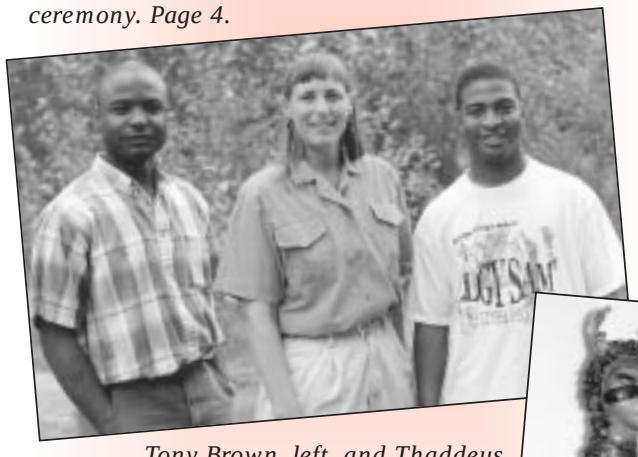


Biologists attach a transmitter to a Belukha whale in a Minerals Management Service study of whale migration along Alaska's north coast. Page 30.

Below, Glacier National Park without glaciers? Assessing climate change. Page 6-7

John Berry, the assistant secretary for Policy, Management and Budget joined Deputy Secretary John Garamendi and Assistant Secretary for Land and Minerals Bob Armstrong at the Department's World Aids Day ceremony. Page 4.



Tony Brown, left, and Thaddeus Sam, right, join Martha Hahn, Idaho state director for the Bureau of Land Management, during their intern training at the Boise office. Page 28

This modern ceramic work, depicting a mythical character in a Native American legend about deer people, is one of the cultural treasures in the Bureau of Indian Affairs museum. Pages 16-17.

Bureau of Indian Affairs employees at the Seba Dalkai Boarding School in Arizona are working with the Navajo Nation to develop a new youth program that seeks solutions to their communities' social and environmental problems. But they need a little help from Interior employees.

The BIA school, located in the Fort Defiance Agency, launched an effort with the Navajo Nation to provide Navajo children between the ages of 6 to 18 with the opportunity to serve their communities while learning environmental protection skills. The **Navajo Nation Eco-Scouts** program is operated by the Navajo Nation and based at BIA schools serving the tribes. There are now 250 Eco-Scouts at nine program sites.

At right, Navajo elders are passing on traditional skills and values to Navajo youth under an Eco-Scouts program that teaches the children, among other things, how to construct a teepee, above, and prepare and use yucca root soap for shampoos, below. The program is asking for help, especially education-al and environmental expertise, from Interior employees.

The aim is to develop a permanent and widespread youth movement that promotes traditional Navajo values of harmony with nature and traditional lifestyles. The Eco-Scouts have helped elderly Navajo farmers with traditional planting and tending of a corn crop, studied solid waste disposal techniques, and developed recycling plans for their communities. They are building greenhouses and renovating community buildings and the houses of elderly tribal members.

The environmental work is accomplished in cooperation with the Navajo Nation Environmental Protection Agency. Tree planting, windbreaks, and community gardens are among future projects planned by the Eco-Scouts. Navajo medicine men and traditional leaders are the teaching nucleus for the traditional learning, which includes cultural training, Navajo language instruction, horse-riding, camping, and wilderness survival.

An important element of the instructional effort is *The Young Scientists Training Program: Natural History of the Colorado Plateau*, a project developed with the Texas Memorial Museum of the University of Texas at Austin and the University of Texas Center for Instructional Technologies. The course focuses on paleontology training and digs but also introduces the youngsters to geology, zoology, and computer technology. During field work last summer, Eco-Scouts helped to discover new dinosaur finds in the Navajo Nation.

"We hope that other agencies in the Department could support this effort with expertise and technical advice," said **Dr. Kyril A. Calsoyas**, the principal of Seba Dalkai School. "There are many Interior offices and individuals whose jobs are directed toward education and community exposure. Every agency in the Department is a potential resource for the Eco-Scots projects. Those that can make a contribution of expertise could strengthen the Eco-Scouts and assure their future as a useful public service organization."

Those who would like to help, should call Dr. Calsoyas (Office of Indian Education Programs) at (520) 657-3208 or write to him at Seba Dalkai Boarding School, HC63, Box H, Winslow, AZ, 86047.

FWS Lauds Commercial Anglers' Help to Lake Sturgeon Project

Dr. Tracy Hill and Jerry R. McClain

The staff of the Fish and Wildlife Service's Alpena (Michigan) Fisheries Research Office recently thanked a bevy of state licensed commercial anglers for their invaluable help in collecting data for a sturgeon project that is being conducted in Lake Huron.

The office employees sponsored a media ride-along and an appreciation dinner for the fishermen. The media initiative provided a tour for representatives from two network television stations (NBC and ABC), two outdoor magazines *(Woods and Water and Michigan-Out-of-Doors)*, one outdoor television program *(Outdoor Magazine)*, and two newspaper journalists with coverage throughout the State of Michigan. This event was conducted out of Bay Port, Michigan, at the Bay Port Fish Company. During the ride-along, two lake sturgeon happened to come up in nets so the media could see first-hand the project in action. The appreciation dinner acknowledged the valuable assistance being provided to the Service by the voluntary cooperation of these commercial anglers. The dinner was held at the Bay Valley Resort in Bay City, Michigan. Commercial fisherman **Bill Lentz**, when expressing his appreciation for the dinner, said, "Of all the groups we have assisted, you (the Service) have been the best group to work with."

Commercial anglers in Lake Huron have been helping the Service collect critical information on lake sturgeon. The commercial anglers encounter lake sturgeon as by-catch in their trap nets during normal fishing operations. Determining location of lake sturgeon in Lake Huron and its tributaries is a goal of this volunteer program between the Service and nine commercial and Tribal anglers from Saginaw Bay to the Upper Peninsula of Michigan.

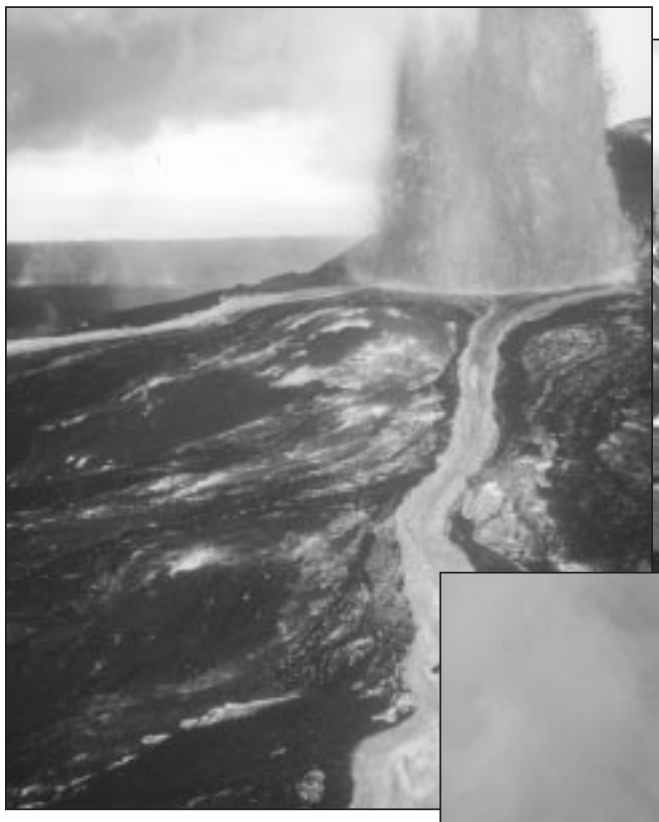
Commercial boat captains have donated 16,000 hours since 1995. This project, which is a joint venture among the Service, the Michigan Department of Natural Resources, and commercial anglers, is designed to gather information on relative abundance, movement, and life history of lake sturgeon in Lake Huron. The commercial fishing crews place a metal tag in the left operculum (gill cover) of lake sturgeon and record biological data on the fish. Since initiation of the project, about 100 lake sturgeon have been fitted with tags. As the number of tagged lake sturgeon increases, recaptures of tagged sturgeon should also increase. Recapture information will allow researchers to determine population estimates and define movements of lake sturgeon among the different basins of Lake Huron.

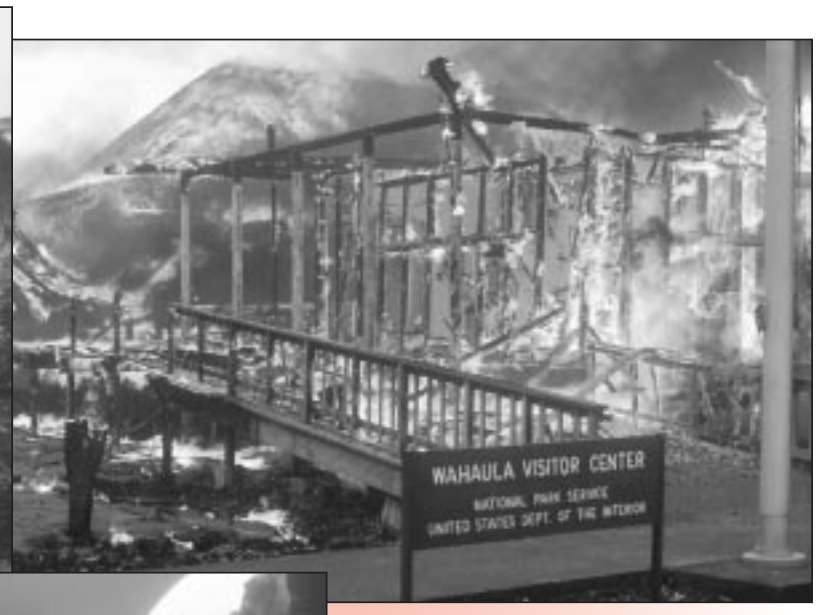
The combined effects of habitat destruction, pollution, and sedimentation from logging and dam construction, blocked access to spawning grounds, and decimated Great Lakes lake sturgeon populations.

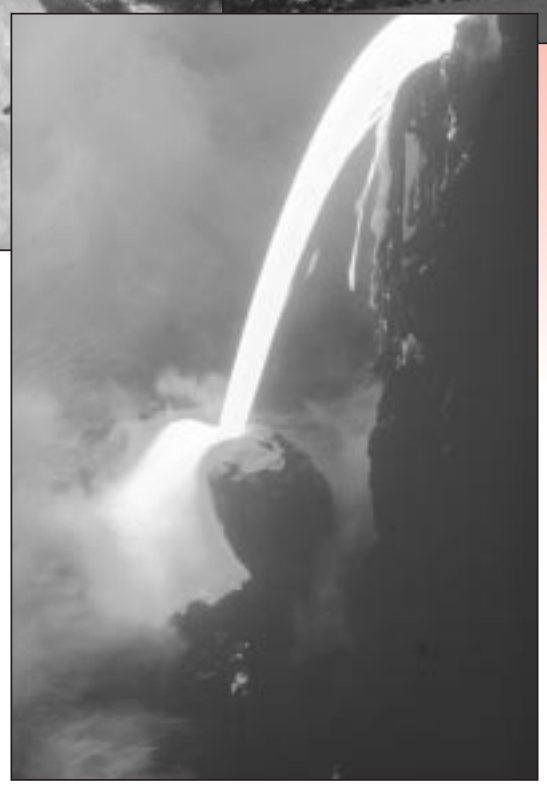
KILAUEA

Still Flowing After 15 Years

Respirators with canisters designed to filter out hydrogen chloride, sulfur dioxide, and airborne glass particles are standard park ranger issue at Hawaii Volcanoes National Park. Everyday, Kilauea Volcano spews more than 2,500 tons of sulfur dioxide into the atmosphere, enough noxious gas to fill 100 Goodyear blimps. USGS scientists at the Hawaiian Volcano Observatory figure the emissions from Kilauea are twice as bad as EPA's worst stationary point source polluter.







Above left, Kilauea sends a vigorous fountain and lava channel down its slopes toward the sea, where it adds coastal real estate, at left. Above, the Waha'ula Visitor Center, which had stood for more than 20 years, is destroyed by a Kilauea lava flow in 1989. Photos by Dorian Weisel (Visior Center fire) and Jim Griggs (coastline flow).

And its been like this for 15 years. Who could have known that the fountains of fire that first lit up the night sky on Jan. 3, 1983 would still be burning with such intensity a decade-and-a-half later? Kilauea's eruption continues today as the longest-lived rift activity in Hawaiian volcano history. For park staff and island dwellers alike, a fifteen-year retrospective on the volcano as both creator and destroyer elicits a mixed emotional response.

Unstoppable in its march seaward, lava leaves no remnants and few reminders of what was. The park has bid a fond aloha to its Waha'ula Visitor Center, as well as tens of thousands of archeological features, including temple sites, petroglyph fields, and village complexes. Kamoamoa Campground and stretches of Chain of Craters Road lie entombed beneath 80 feet of basalt. Every minute, another 130,000 gallons of molten rock gushes from earthcracks on the volcano's flank, enough to pour a lava veneer over Washington, D.C.'s 63 square miles in just five days.

Hawaii County civil defense administrators estimate the economic loss due to ongoing lava inundation tops $100 million. Unpredictable in their meanderings, rivers of lava have consumed 181 homes, a Congregational Church, a community center, and a grid of power and phone lines. Lava has torched more than 16,000 acres of lowland and rain forest, home to rare hawks and honeycreepers, happyface spiders and hoary bats. Today, a visitor anticipating a dip at Kaimu blacksand beach must instead find satisfaction in a postcard view—lava has transformed the palm-fringed crescent bay into a *pahoehoe* (a type of lava) peninsula.

But wherever lava meets the sea, the island grows. In a creative process spanning 80 million years, this land born of the sea and forged by fire inspired Mark Twain to proclaim the Hawaiian archipelago, "the loveliest fleet of islands that lies anchored in any ocean." Since 1983, more than 550 acres of new land have been added to the 'big island' as Hawaii is locally known. Hawaii Volcanoes National Park grows without political fanfare, and without congressional authorization.

And the cycle of creation (and destruction) could continue indefinitely. "There's nothing to preclude this eruption going on for another 15 years," said **Don Swanson**, the USGS scientists in charge of the observatory. "We don't see any reason to think that's its winding down." Meanwhile, Kilauea continues to attract 1.5 million visitors annually. "They have a feeling that they're already connected to this volcano," said park ranger **Mardi Lane**. "It has become part of their television or their press past." **H. T. Collins'** entry in the Volcano House register of 1920 offers a clue to the enticement: "Nuthin' like it in Oklahoma."

ENDANGERED SPECIES, TARO FARMS AT HOME IN HANALEI

Above, Tom Alexander, center, manager of the prepares chicken and pork laulau, while Jerry Leineke, samples taro fritters made by Flora Quick, left, and Marilyn Tumalip, right. Below, Carol Haraguchi, at left, conducts a tour of the historic Haraguchi Rice Mill.

Nathan Caldwell, Kaua'i NWR

The staff and volunteers of the Kaua'i National Wildlife Refuge Complex and local taro farmers had been preparing since the summer for the Silver Anniversary of the refuge, which is nestled in the picturesque Hanalei River Valley on the north shore of the island of Kaua'i. But when the day came—the Saturday after Thanksgiving—to mark 25 years of effort, the overcast skies opened and steady rain, high winds, and muddy ground greeted the staff.

Despite the weather, more than 1,000 guests, a mix of local residents and island visitors, thought it was a good day to visit Hanalei National Wildlife Refuge, the oldest of the three National Wildlife Refuges on Kaua'i. The visitors filled shuttle busses from parking areas in the town of Hanalei, and some even walked the half mile from a parking area set up just over the bridge crossing the Hanalei River.

They viewed four species of endangered waterbirds, toured a taro *lo'i* (pond) and historic rice mill, watched exhibits on taro farming and learned how taro cultivation provides habitat for endangered Hawaiian waterbirds. They sampled taro products—taro is a root crop that provides a major source of carbohydrates for Pacific islanders—and listened to national, state, and local political leaders speak on the success of 25 years of cooperation between taro farmers and the U.S. Fish and Wildlife Service.

The Hanalei staff and the taro farmers were especially pleased that many of the guests hiked the first trail constructed on Hanalei NWR, which also leads to a newly discovered Hawaiian cultural site. The join effort had designed and built the trail to withstand the 100 inches of rain Hanalei receives annually. The project also entailed writing an environmental assessment, making a parking lot to accommodate trail users, and designing and building a bridge over the China Ditch, an irrigation canal that has been delivering water to taro fields since before Captain Cook landed. All this was coordinated around the staff's discovery of a *heaiu*, a previously undocumented Hawaiian temple site, and the archeological work that was required to include the find as an overlook in the trail system.

"All this would have been very impressive for any NWR complex staff to pull off," said **Tom Alexander**, the manager of the complex. "But we only have three staff members stationed at Hanalei, one of them is **Adam Asquith**, who is responsible for biology on all three of our refuges. Without our intern program and lots of work from all the staff of the complex, we wouldn't have been able to accomplish this. Of course, all this went on in addition to the normal high workload any refuge complex has," Alexander explained. He particularly praised biologist Asquith's efforts to ensure that the refuge, including the trail, was physically ready for the anniversary celebration.

Hanalei was established in 1972 to preserve vital wetland habitat for the Hawaiian coot, Hawaiian moorhen, Hawaiian stilt, and Hawaiian duck, all endangered species. The view from a popular overlook on the ridge above the Hanalei Valley has been said to define the island of Kaua'i. The refuge also provides nine families a place to farm taro by traditional means. Taro farming in this manner provides excellent habitat for the endangered birds.

When the Fish and Wildlife Service bought the land, farmers were growing taro on the lowland portion of the refuge. The Service entered into cooperative agreements with them and now 60 percent of the taro grown in Hawai'i comes from the Hanalei Valley. Hanalei is a success story, showing that farming and endangered species can be beneficial for the birds and profitable for the farmers involved.

Besides having a good turnout in bad weather, the celebration also accomplished manager Alexander's goal for the celebration— recognition of the success that cooperation between the taro farmers and the FWS has created in the Hanalei Valley.

Southwest Initiative Aims at Unified Process for Natural Resource Managers

Cindy Hoffman

Agencies in the southwestern regions of the U.S. departments of the Interior, Agriculture, and Defense have pledged to improve conservation and management of the natural and cultural resources on federal lands in Arizona and New Mexico through improved collaboration. This initiative also aims to improve collaboration among the federal agencies and the publics they serve, including the private sector, conservation and research communities, state, Tribal, and local governments, and other stakeholders.

FWS Southwest Regional Director **Nancy Kaufman** and the USDA's acting Southwest regional forester**, John Kirkpatrick**, have agreed to co-lead this effort. The strategy will result in a unified natural resource management process in the Southwest that maintains the region's environmental, economic, and cultural quality of life. The Southwest has many difficult and complex natural resource issues and the regional executives believe collaboration can play a key role in resolving those issues.

Nancy Kaufman

Agencies involved in the effort include the Fish and Wildlife Service, Geological Survey, National Park Service, Bureau of Reclamation, Bureau of Indian Affairs, and Bureau of Land Management in the Interior Department; the Forest Service and Natural Resources Conservation Service in the Department of Agriculture; and units of the Army, Navy, Marine Corps, and the Air Force in the Department of Defense.

The regional agencies will undertake four steps: identify those issues that need immediate attention in the region; create an interagency framework for working together; determine a date for developing a proposal for collaborating with the public and private sectors; non-governmental organizations; and other state, local, and Tribal governments; and develop a long-term collaborative approach for resolving natural resource conservation and management issues in Arizona and New Mexico.

The strategy is a bottom-up process sought by the field and regional offices of the participating agencies and supported by the Washington, D.C. offices and departmental leaders. The field and regional offices will be responsible for developing and carrying out this collaboration.

Mari Barr, the deputy assistant secretary for Human Resources, second from left in photos above, congratulates Ross Elementary School students Linh Pham, in photo at left, and Elisa Mata, in photo at right. At left in photos is Miguel Ley, the principal of Ross Elementary School; at right is Dolores Chacon, the director of the Office of National Service and Educational Partnerships. Photos by Tami Heilemann

A School Partnership in Action

Sylvia Jones, Office of National Service and Educational Partnerships

In keeping with the Department's School Partnership in Education Agreement with Ross Elementary, the Office of National Service and Educational Partnerships coordinated Interior's co-sponsorship of a poster contest for Ross students. The theme for the contest was: *What Education Means to Me—Learning Through National Parks, Rivers and Forests*. The contest was organized in recognition of American Education Week (Nov. 16-22).

At a special program held Dec. 9 at Ross Elementary School, Deputy Assistant Secretary for Human Resources, **Mari Barr**, presented Certificates of Recognition to the two winners Elisa Mata (sixth grade) and Linh Pham (fourth grade) for their outstanding work. They will also receive $100 U.S. Savings Bonds donated by the Department of the Interior Recreation Association. An exhibit of all posters entered by Ross students was on display in the Main Interior Building's cafeteria from Dec. 18 through Jan. 30.

$143 Million in Minority Contracts, 32

Interior employees, family and friends participate in the annual ten-kilometer AIDS Walk to raise funds for the HIV/AIDS programs of the Whitman-Walker Clinic, the largest AIDS service organization in the District of Columbia metropolitan area. More than 20,000 participants gathered to show their support for victims of AIDS and the prevention of further transmission of HIV through education programs.

Interior GLOBE: A Recognized Employee Organization

Interior has three recognized employee organizations that assist the Department in carrying out its goals to create a more diverse workforce. They are the National Association for the Advancement of Black Federal Employees, the Association of Hispanic Employees of the Interior Department, and the organization of Gay, Lesbian, or Bisexual Employees, known as GLOBE.

The recognition of these groups is in keeping with the Secretary's policy that there will be no discrimination in the Department based on race, national origin, color, sex, sexual orientation, religion, disability, age, or any other non-merit factor. GLOBE is profiled in this issue. Other recognized organizations will be highlighted in future issues.

In his Jan. 26, 1994, Supplement to the Equal Opportunity Policy, Secretary Babbitt expanded existing policy to include "sexual orientation as it relates to all matters of employment." The Interior Gay, Lesbian or Bisexual Employees (GLOBE) was recognized as an official employee organization of the Department on Sept. 16, 1994.

The mission of GLOBE is to provide 1) a forum for gay, lesbian, and bisexual Interior employees to meet and address issues of concern, and 2) a means to work with Departmental and bureau management to advocate personnel policies and practices that encourage diversity, improve the workplace environment, and eliminate discrimination based on sexual orientation.

Meetings: The membership holds a lunchtime meeting once a month in the Main Interior Building (MIB) to discuss issues and ideas that will improve the workplace for all employees in the Department. Members also meet socially outside the office several times a year. GLOBE has worked to increase its membership outside the Washington, D.C. area by reaching out to gay, lesbian, and bisexual employees and their friends and supportive co-workers around the country, encouraging the formation of affiliate GLOBE chapters. One of the largest affiliate chapters is the National Park Service Gay & Lesbian Association (GALA), located in Golden Gate National Recreation Area in San Francisco, California. Other chapters are found in Denver and New York.

Activities: The Interior GLOBE meets with senior Departmental management to address workplace concerns of gay, lesbian, and bisexual employees. Interior GLOBE was instrumental in raising the issue that led to the development of the Deputy Assistant Secretary's Dec. 4, 1997, memo emphasizing the Department's policy of Zero Tolerance for discrimination or harassment based on sexual orientation. GLOBE consulted with the Department's Office of Equal Opportunity to help create an alternative dispute mechanism for resolution of conflicts involving gay, lesbian, or bisexual workplace issues; and GLOBE is continuing to work with this office to develop guidelines for the processing of discrimination complaints.

Information has been provided to members on domestic partners benefits, the Family and Medical Leave Act of 1993, and the Federal Employees Family Friendly Leave Act of 1994. Interior GLOBE participates in the annual AIDSWALK Washington and in a typical year raises $2000. This past year the organization has had members from Interior GLOBE and NPS GALA participate in AIDSRide benefits held on both coasts. Non-gay Interior employees also actively participate in these events. Interior's GLOBE is a member of and participates in the interagency Federal GLOBE's monthly meetings and other activities.

Contacts: The president of Interior GLOBE is Jay Douglas, a senior mineral leasing specialist with the Bureau of Land Management. He may be reached via the Internet at j1dougla@wo.blm.gov. The Interior GLOBE representative to the Interior Diversity Council is Jim Gasser, a program analyst in the National Park Service Director's Office. He may be contacted on the Internet at Jim_R_Gasser@nps.gov. These members can help interested employees contact GLOBE members in their offices or geographic areas, or help them start new affiliate chapters in their areas. Keep an eye out for the Interior GLOBE web page expected to be established later this year.

For information on employee organization, contact Mercedes Flores, Office of Equal Employment Oppurtuntiy, at (202) 208-6120.

Bison Return to Native Lands

Diane Katzenberger, Region 6, FWS

The Sioux have a saying, "A people without history is like the wind in the grass." For many Native Americans, restoring bison to Tribal lands will restore their history and bring a sense of completeness to the land. The Plains Indians, especially, feel a special kinship to the buffalo, holding it sacred and using its gifts wisely. Their ancestors migrated in concert with the great herds, following their food source and spiritual touchstone.

At one time, the vast herds of *Bison bison*—upwards of 60 million animals—roamed America from the Rocky Mountains to the Mississippi River and from Canada to Mexico. As European settlers pushed west from the East Coast and hunted the buffalo for hides, meat, and sport, the herds dwindled and the bison all but vanished. By the turn of the century, fewer than 300 wild buffalo remained. Eradication of the bison also meant eradication of the livelihood and well-being of the Plains Indians.

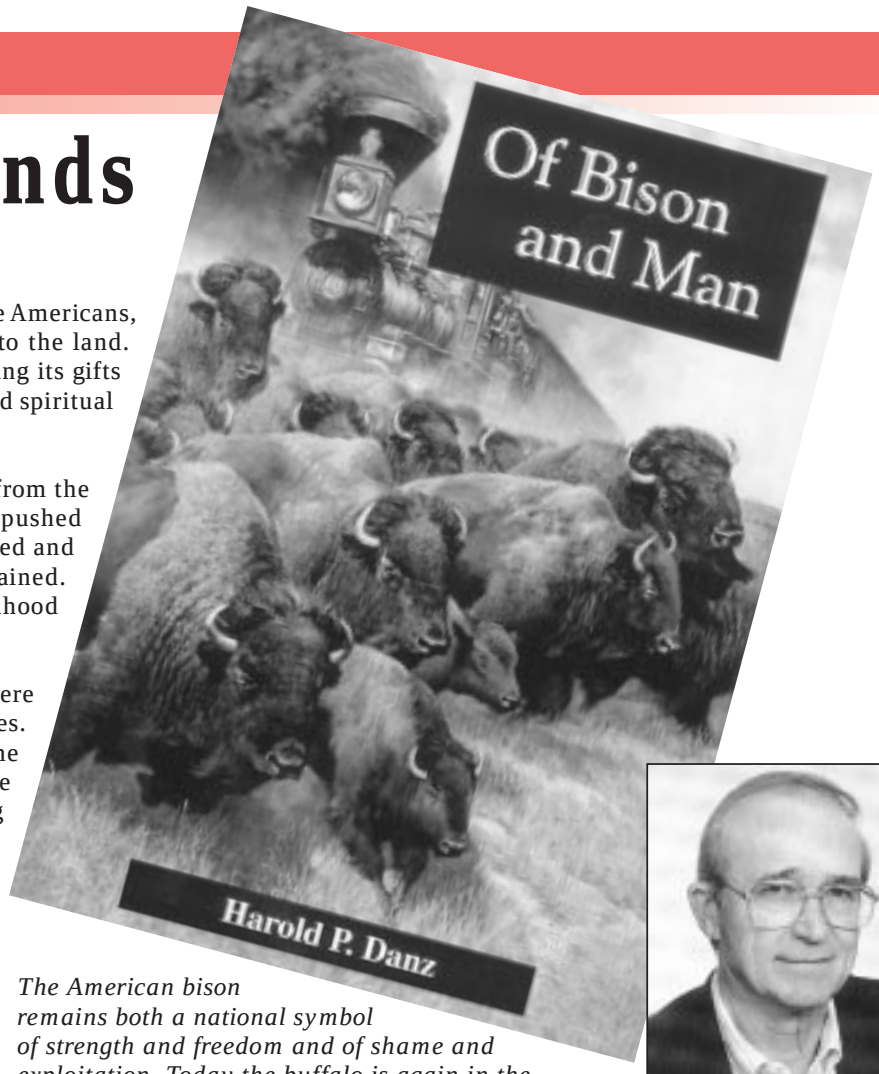
Conservation came slowly, but in 1894, the first laws were enacted to protect this vanishing North American species. The Fish and Wildlife Service has played a vital role in the preservation and propagation of the bison. Today, the Service and the Intertribal Bison Committee, representing more than 40 Tribes, are forging a partnership that will help bring back the buffalo to Indian lands.

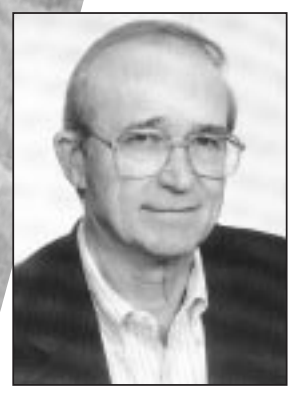
On Oct. 1, 1997, these two groups signed a Memorandum of Agreement under which the Service will make surplus bison available to the intertribal committee for distribution to Native American Tribes to establish and replenish self-sustaining herds. The Service began allotting surplus bison to the committee after the annual round-ups at the National Bison Range and Fort Niobrara National Wildlife Refuge, held in October.

"The Service respects Native Americans' spiritual and historical ties to the bison," said **Terry Terrell**, deputy director for the Service's Mountain-Prairie Region. "Implementation of this agreement will help restore this traditionally significant animal to Tribal lands. Assisting the committee in this goal is consistent with the Service's Native American Policy, as it supports empowering Tribes in self-governance and cultural independence."

"It is my honor and privilege as representative of the Intertribal Bison Committee members to participate with the Fish and Wildlife Service in the signing of this agreement," said **Michael Fox**, president of the Intertribal Bison Cooperative. "The Indian's life parallels the cycle of the buffalo. We consider him to be the physical manifestation of our history—past, present, and future. When the bison return, our people feel the connection. The elders remember stories and songs that help teach our children about their heritage. We become closer as a community."

Michael Fox, above, is president of the Intertribal Bison Cooperative, which was formed in 1990 to coordinate assistance to Tribes in returning the buffalo to Indian lands. For information, contact the cooperative at (605) 394-9730; FAX (605) 394-7742. Or write to P.O. Box 8105, Rapid City, SD, 57709-8105.





The American bison remains both a national symbol of strength and freedom and of shame and exploitation. Today the buffalo is again in the center of controversy over its role in the U.S. economy, its range, its right to exist in the wild. In Of Bison and Man, *author Harold Danz, a former National Park Service employee, explores the bison's prehistory and natural history, its complex relationship with the American Indians, the slaughter of the mid to late 19th century, its recovery and establishment as an industry. For information on the publication , contact the University Press of Colorado at (303) 5305337. FAX (303) 530-5306. Or write to P.O. Box 849, Niwot, CO, 80544.*

NAS Study Finds Brucellosis Risk

The National Research Council of the National Academy of Sciences has released a report concluding that bison carrying brucellosis in Yellowstone National Park pose a small but real risk of infecting Montana cattle herds. The report calls for aggressive management with bison quarantine zones around the park and a concerted effort to develop an effective vaccine to control or eradicate the disease in the park's elk and bison herds.

The State of Montana has cited the possibility of diseased bison infecting cattle with brucellosis—which can cause domestic cattle to abort— as the rationale for shooting bison that wander out of the park. In the winter of 1997 about 1,100 bison that roamed outside the park were either shot or shipped to slaughter in an effort to keep the disease from spreading to domestic cattle. The report lends support to continuing that policy this winter.

BLM TEAM STABILIZES PREHISTORIC MIDDEN SITE

Judy Pace, BLM Jackson Field Office

Prehistoric Native American shell middens in Florida are rapidly disappearing. The middens were created when Native Americans dumped baskets of shells from their exploitation of fresh- and saltwater resources. These middens were also used as places of disposal for broken pieces of pottery and bones from mammals and fish, in effect, creating garbage dumps. The sites are now on what has become prime real estate. Due to this situation, few shell midden sites are available for scientific research.

The Bureau of Land Management's Jackson Field Office, however, has stabilized a shell midden—the **Jupiter Inlet II site**, for conservation for future research. From preliminary investigations, the midden has been determined eligible for listing on the National Register of Historic Places by the BLM, with concurrence by the Florida State Historic Preservation Office. Based on pottery fragments, the surface of the site dates to the Glades II/III period (A.D. 800-1200). A testing program conducted in December 1996 revealed that the site has undisturbed levels and may date as early as the Archaic Period.

Under a Memorandum of Understanding, the Town of Jupiter's Department of Parks and Recreation provided manpower and equipment for the week-long project. The BLM provided all the material used in the effort and the expertise of **Dr. Robert M. Thorne**, the director of the National Clearinghouse on Site Stabilization at the University of Mississippi.

The methodology for the Jupiter Inlet II stabilization is considered the standard for preservation of this type of archaeological site. It is used on other archaeological projects in similar locations.

The work began with site preparation. Fill material was spread over part of the area to raise ground level and improve drainage over the archaeological site. A layer of geotextile material was then applied and additional fill material was spread over the geotextile material. Sod was then laid over the site.

The result is an area that will support continued use by local residents and visitors, an archaeological site now protected from further deterioration, and a conserved source of information for future scientific research.

Dr. Robert Thorne, at right, applies fill material to the shell midden site. Geotextile material is laid and fill material spread, below, by a worker and equipment provided by the Town of Juniper. A layer of sod was the final step in stabilizing the site, at bottom right. Photos by Judy Pace

Assessing the Impacts of Climate Variability and Change on the Nation's Resources

Over the past eight years, the Department of the Interior has been participating in the U.S. Global Change Research Program—a comprehensive and integrated research initiative to understand, assess, predict, and respond to human-induced and natural processes affecting the Earth's environment.

Formally initiated by Public Law 101-606 in 1990, which provided for development and coordination of the effort, the program has both science and assessment components to address these goals. The legislation is at **http://www.gcrio.org/gcact1990.html**

The science is focused in four areas: seasonal to inter-annual climate variability; climate change over decades to centuries; changes in ozone, ultraviolet radiation, and atmospheric chemistry; and changes in land cover and in terrestrial and aquatic ecosystems.

In 1997 the program began a national assessment of the impacts of climate variability and change. The assessment will apply what research is finding to help understand the potential impacts, both detrimental and beneficial, that global change may have on the environment, society, and the economy.

The National Assessment

The National Assessment will help society understand climate variability and change, what the significance might be, and how to better prepare for responding or coping.

The major questions driving the assessment include:

- What are the current environmental stresses and how are they likely to play out in the future without a change in climate or climate variability?
- How will a change in climate or climate variability affect these environmental stresses?
- How can people cope with climate variability and change in ways that help with other environmental stresses?
- What knowledge and information do people need to better estimate the consequences of climate variability and change?

Envisioned as a public-private partnership, the National Assessment is building networks of concerned citizens around the country through a series of workshops that relate climate variability and change to issues important at the local and regional scale. Approaching potential impacts from a regional scale helps place climate variability and change in the context of specific concerns to people where they live. By engaging scientists, educators, planners, resource managers, legislators, business people, activists, and other decision makers and concerned citizens in the assessment process, the hope is to better understand the regional mosaic of current and potential changes and establish the basis for coping with the future change. The regional networks overlap by design to foster involvement and interaction.

Melting permafrost is altering the boreal forest near Tok, Alaska. Photo courtesy of T. Osterkamp, University of Alaska, Fairbanks

ALASKA—RECENT CLIMATE-RELATED IMPACTS

- Increases in salmon catches.
- Increased road maintenance costs and major landscape changes from accelerated thawing of permafrost.
- Fewer construction problems where permafrost has melted.
- Longer growing season for forestry and agriculture.
- Subsistence hunting patterns have shifted; with changes in sea ice conditions hunting on the ice has become more dangerous.
- Permafrost thawing has ruined the traditional ice cellars of northern villages.
- Warmer conditions have allowed insects to thrive when cooler summers and colder winters would have normally held them in check; for example, the spruce bark beetle has destroyed around three million acres of forest.
- Spring ice breakups on the Tanana River are occurring earlier.

1997-98 REGIONAL WORKSHOPS SCHEDULE*

Region	Site	Dates	Coordinating Agency
Central Great Plains	**Fort Collins, CO**	**May 27-29, 1997**	**DOE**
Alaska	**Fairbanks, AK**	**June 3-6, 1997**	**DOI, NSF**
Southeast	**Nashville, TN**	**June 25-27, 1997**	**NASA, NOAA**
Pacific Northwest	**Seattle, WA**	**July 14-16, 1997**	**NOAA, NASA**
Southwest	**WorldWideWeb Workshop**	**July 7-25, 1997**	**DOI**
	Tucson, AZ	**September 3-5, 1997**	**DOI, NOAA**
New England	**Durham, NH**	**September 3-5, 1997**	**NSF**
Middle Atlantic	**State College, PA**	**September 9-11, 1997**	**EPA**
Northern Great Plains	**Grand Forks, ND**	**November 5-7, 1997**	**NASA**
Great Basin/Rocky Mts.	Salt Lake City, NV	February 16-18, 1998	DOI
Gulf Coast	Baton Rouge, LA	February 25-26, 1998	EPA
Southwest Border	El Paso, TX	March 2-4, 1998	NASA
Hawaii/Pacific Is.	Honolulu, HI	March 3 -6, 1998	FEMA, NOAA
California	Santa Barbara, CA	March 9-11, 1998	NSF
Metropolitan East Coast	New York, NY	March 23-24, 1998	NSF
Southern Great Plains	TBD	Late March, 1998	USDA
Upper Great Lakes	Ann Arbor, MI	May 6-7, 1998	EPA
Appalachians	Morgantown, WVA	May 26-29, 1998	USFS
South Atlantic Coast/ Puerto Rico, V.I.	TBD	Spring, 1998	NOAA
Eastern Midwest	TBD	Spring, 1998	NOAA

* Workshops in bold have already occurred. For information on these workshops and who to contact, visit the U.S. Global Change Research Program Internet site at <http://www.usgcrp.gov/usgcrp/regional.html> or call 703/648-4640.

ALASKA—CLIMATE CHANGE IMPACTS

Alaska, like many other areas of the world, experienced a shift to warmer temperatures in the late 1970s. The magnitude of this recent shift, as well as the rate of climate warming and projected future changes, pose a host of problems and opportunities, some with international economic implications, for the people of Alaska.

Such changes are also having an impact on the infrastructure presently in place, and may affect the chances of survival of Alaska's forest and other ecosystems, the goods and services of which are crucial to the region.

Among the major climate-related trends in Alaska that scientists have observed are the following:

Air temperatures for Barrow, Nome, Fairbanks, and Anchorage increased two degrees C. around 1977 and the increases have persisted. The extent of sea ice decreased about five percent in 1977 and has remained that way; sea ice thickness may also have been reduced. Precipitation has increased for most of Alaska, except for the southeastern part of the state and summer precipitation in the interior, particularly around Fairbanks.

Boreholes reveal that permafrost temperatures in northern Alaska have increased two to four degrees C. above temperatures 50-110 years ago; permafrost has thawed in some places where it is discontinuous. The 30-year air temperature record shows that increases are greatest in winter and spring and in the interior of Alaska and north of the Brooks Range.

The Interior-sponsored Alaska workshop—held in June 1997—drew people from within as well as outside of the state to discuss current and potential problems associated with the state's forests, tundra, marine resources, wildlife, subsistence economy, coastal systems, permafrost, and human systems—such as transportation, energy, and land use—under changing climate scenarios.

With further warming in Alaska, a variety of consequences are possible. The location, volume, and species mix of fish catches could change, causing stress as the industry deals with relocation of harvesters and processors. While the permafrost is melting, the maintenance cost for pipelines could increase, but construction costs could decline once it is melted. The loss of sea ice could reduce oil and gas offshore exploration and production costs and improve shipping, but coastal erosion could increase due to higher sea levels and increased storm intensity.

A longer growing season could improve agriculture and forestry yields but warmer temperatures and increased summer drying could increase flammable vegetation, thus increasing the potential for more forests fires. While warmer weather could bring a longer tourist season, degraded attractions due to melted glaciers and fires could offset the benefit.

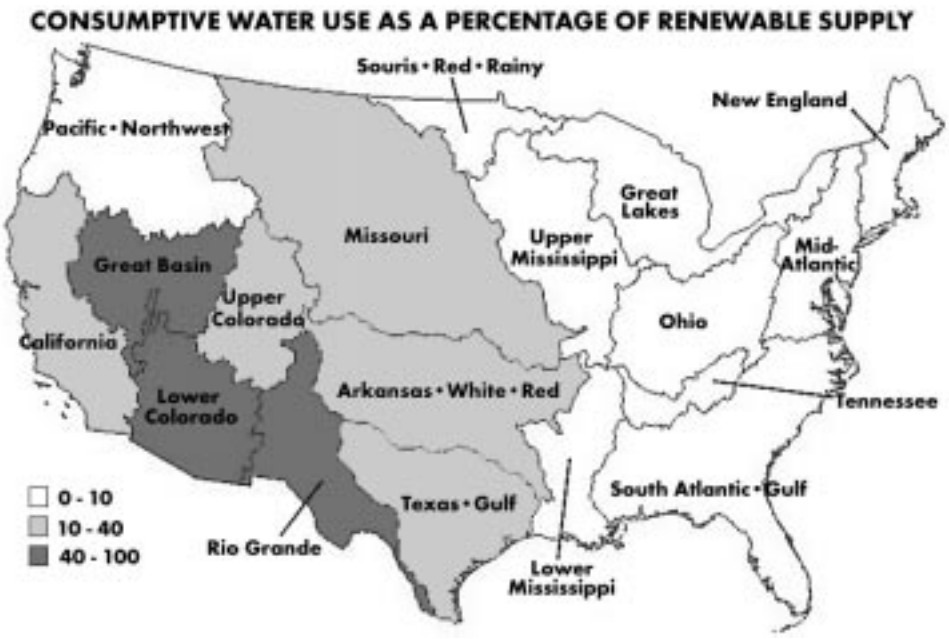
A warmer climate could also result in changes in the need for government services as local income declines due to a decline or loss of subsistence resources. (Note: Information for Alaska was taken from the climate impacts workshop, the workshop draft report, and a U.S. Global Change Research Program seminar on observed climate change in Alaska.)

THE ARID AND SEMI-ARID WESTERN UNITED STATES

Broadly defined as all of Arizona, New Mexico, Nevada, and Utah plus the arid and semi-arid regions of California, Colorado, Idaho, Oregon, Montana, and Wyoming, this vast region is dominated by public lands. Three workshops—focused on the Southwest, Great Basin/Rocky Mountains, and California—are building networks of people and organizations. This western region contains major metropolitan centers and is among the most urbanized in the country (Utah, for example, is the sixth most urbanized state in the nation). The region's economy is a mixture of ranching, dryland and irrigated agriculture, tourism, retail, manufacturing, and high technology industry.

With some of the highest population growth rates in the country (Phoenix and Las Vegas, for example), the region's demand for resources, particularly water, is increasing—water use could exceed sustainable supply. Changes in patterns of land use accompanying the growth in population are stressing natural ecosystems and adding to regional air pollution. Climate extremes are characteristic of the region; moderate to severe floods and droughts affect portions of the Southwest every year.

Changes in climate and climate variability will likely have a significant impact on this region. Studies that have reconstructed the climate history of the southwestern U.S. reveal a complex and cyclical nature of floods and droughts that includes the El Niño-Southern Oscillation. Various climate scenarios for the region are plausible. For example, if summer rains increase in the Great Basin, the productivity of native vegetation would increase, shrub-steppe grasses would increase, and livestock grazing would improve. The increase in flammable vegetation, however, could result in more frequent and intense fires resulting in land degradation and a loss of biodiversity. If winter precipitation decreases, the consequences for the ski industry and downstream water uses could be significant. (This information was taken from the Southwest climate impact workshop and draft report.)



Grinnell Glacier is Melting Due to Increased Temperatures

In top photo, the extent of Grinnell Glacier at Glacier National Park is recorded in 1910, while the photo above shows the significantly reduced glacier in 1997. Top photo by Kiser, from GNP Archives, and photo above by Fagre.

IMPACTS ON WATER AND INTERIOR RESOURCES

In addition to assessing the impacts of climate variability and change on a regional basis, the National Assessment will look at the consequences for major sectors of the U.S. economy including water resources and national parks, refuges, and other public lands. The assessment of water resources includes the quantity of water available for withdrawal purposes from both surface- and ground-water systems; the chemical characteristics of those waters, especially as related to the health of humans and ecosystems; and the hazards posed by hydrologic extremes (floods and droughts), in terms of water quantity and quality.

An adequate supply of clean water is an issue that is central to all social, economic, and environmental sectors. Many of the most significant concerns in the agricultural, forestry, ecosystem, energy, urban, commerce, and human health sectors derive from the basic issue of water availability and quality. Water resource planners and managers developing policies and management options use current information and projections on discharge, water quality, water use and demand, population, land use, environmental regulation (e.g. endangered species, water quality requirements), and technology development.

Information that is needed to forecast water availability includes improved estimation of regional population growth, land use change, and the likely water demand shifts that will accompany these demographic and economic changes. Forecasting water quality requires better projections of the influence of environmental regulations and management practices. For example, agricultural buffer zones would significantly improve estimates of water quality. Improved information on the likely range of climatic conditions would also be beneficial in ensuring that an adequate supply of clean water is maintained.

An array of techniques is available for reducing climatic and non-climatic stresses on water availability and quality such as increasing reservoir capacity, changing the operating rules of water resources systems, improving long-range and short-range hydrologic forecasting, or increasing use of market mechanisms to change the allocation of water in light of changed conditions. Changing land use practices to reduce sediment and nutrient loss to surface water and ground water could significantly enhance water quality.

The nation's parks, refuges, and other public lands account for large areas with diverse landscapes and ecosystems. These lands are under multiple stresses today. Their natural resources are important to the nation and its economy through grazing, agriculture, mining, recreation, and tourism. In addition, they protect unique and pristine biological resources that include rare species of fish, plants, and wildlife.

Increased variability in climate and climate change will affect existing stresses in different ways. One of the more perplexing impacts could be the shift in vegetation and wildlife engendered by a change in climatic norms. Many parks, refuges, and wilderness areas were designated for their unique characteristics and habitats. As species migrate in response to climate variability and change, these designated areas with fixed boundaries may no longer be able to support and provide for the flora and fauna that now reside there.

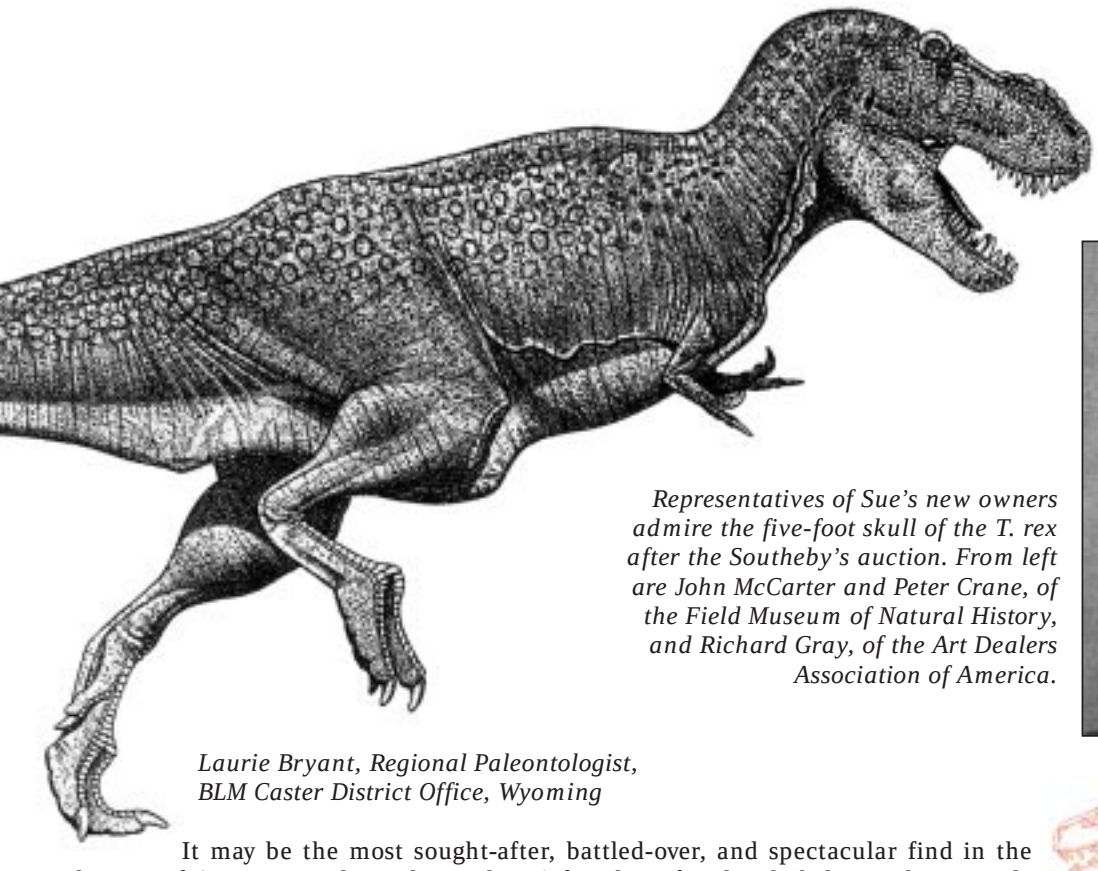
Increased temperatures are causing glaciers to melt (imagine a Glacier National Park without glaciers). Sea level changes will continue to alter wetlands and shorelines. Climate changes could also alter the balance among species and enhance the encroachment of exotic species. Insect and disease outbreaks could increase, and a loss of biodiversity and habitat could occur.

Existing stresses on parks, refuges, wilderness areas, and other public lands include the following: increased development in and adjacent to federal lands; increased recreational use; altered occurrence of natural fires and flooding; livestock grazing and concentrations of protected wildlife; habitat fragmentation at landscape scales that is often intensified by boundaries; air pollution; exotic species invasion.

Responses to current and potential future stresses include the following efforts: maintain or restore natural disturbance frequencies and intensities such as the natural role of fire; enhance migration corridors and emphasize whole ecosystems approaches to managing these lands; develop adaptive management practices; increase efforts to control exotic species by improving biological, chemical, and physical control techniques; expand natural resource inventory, monitoring, and research activities.

Ghost swamps result when saltwater floods a baldcypress swamp. Photo courtesy of V. Burkett

Not So Sweet Sue



Representatives of Sue's new owners admire the five-foot skull of the T. rex after the Southeby's auction. From left are John McCarter and Peter Crane, of the Field Museum of Natural History, and Richard Gray, of the Art Dealers Association of America.

Laurie Bryant, Regional Paleontologist, BLM Caster District Office, Wyoming

It may be the most sought-after, battled-over, and spectacular find in the history of American paleontology. The 50-foot long fossilized skeleton, disarmingly known as Sue, is the largest and most compete *Tyrannosaurus rex* ever found. It also is the most expensive dinosaur fossil ever recovered from American soil, bringing a record $7.6 million sale price at auction.

But more importantly, the travails and notoriety of Sue—and the wave of international fossil merchandising that her story epitomizes—hold significant implications and potentially an administrative nightmare for federal, state, and local natural resource managers.

The story began in 1990 when members of the Black Hills Institute of Geological Research (BHI), a commercial fossil dealership in Hill City, South Dakota, found the nearly complete skeleton of the female *T. rex* on a Cheyenne River Reservation ranch in South Dakota. The ranch is owned by **Maurice Williams**, a Sioux Indian. The find was named after **Susan Hendrickson**, the discoverer of the fossil, which is 90 percent complete and includes a five-foot skull and more than 400 bones. The most significant previous *T. rex* finds were about 60 percent complete.

The 65-million-year-old fossil was recovered from land held in trust by the Federal Government (through the Interior Department) for rancher Williams. Although he accepted $5000 from BHI, Williams maintains that amount was a fee for looking for fossils on his land. BHI maintains that it was a payment for the fossil itself.

Legal Battle and Auction

A subsequent investigation into allegations of theft of fossils from federal lands resulted in a search warrant that allowed the FBI (assisted by other agencies, the South Dakota National Guard, and Interior Department paleontologists) to seize the skeleton and related materials in May of 1992. The skeleton was housed for more than four years at the South Dakota School of Mines and Technology in Rapid City while court battles were waged over its ownership. In February, 1993, the 8th District Court ruled that the skeleton was the property of the Federal Government, held in trust for Williams, and that BHI had no right to it.

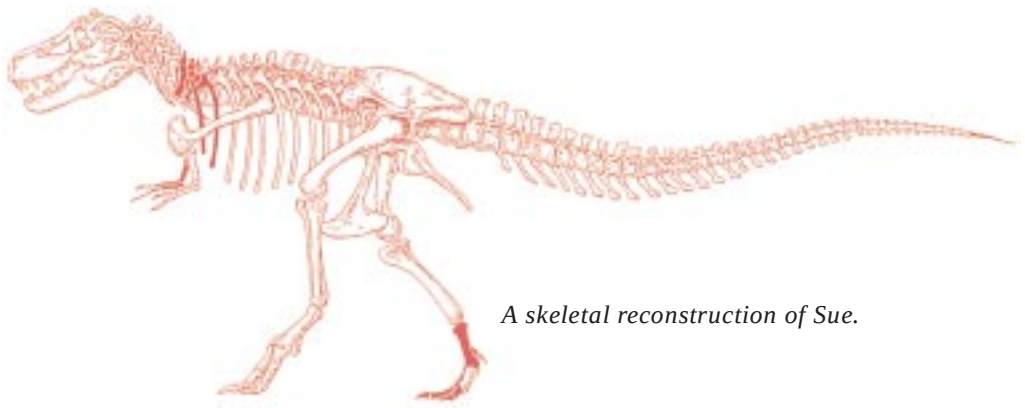
BHI appealed to the U.S. Supreme Court and also filed a mechanic's lien for more than $200,000, claiming that the company had spent a great deal of time and money preparing the specimen and deserved compensation. Ultimately, the Supreme Court declined without comment to hear the appeal, and the 8th District Court found that no lien could be placed on the fossil. Other materials seized with the *T. rex* skeleton led to a federal criminal investigation into the activities of the BHI.

In 1993, company president Peter Larson and other individuals were named in a criminal indictment that included 39 felony counts of conspiracy, money laundering, theft of government property, wire fraud, obstruction of justice, and other charges. A long trial, held early in 1995, resulted in the convictions of Larson and the Institute. Larson was sentenced to 24 months in a federal penitentiary. He was released in 1997.

Meanwhile, Sue's lawful owner, Maurice Williams, decided to sell the skeleton and worked with BIA appraisers to arrange the transaction through Sotheby's auction house in New York City. Several museums, including the U.S. National Museum of Natural History and the University of North Carolina Museum, offered bids, and the price of the controversial *T. rex* rose at the rate of $23,000 per second during the Oct. 4 auction on Manhattan's Upper East Side.

The Field Museum of Natural History (Chicago) offered the winning bid of $7.6 million—money that the Federal Government will pay to Williams as it is received in three annual installments. With Sotheby's premium added, the total cost of the sale came to $8.4 million. The Field Museum had arranged to purchase the now internationally famous fossil with the financial help of a consortium that included McDonald's, the Disney Corporation, and the California State University system.

In return for their financial support, McDonald's and Disney will receive life-size replicas of the skeleton. McDonald's will receive two casts for use in an international traveling exhibit, while Walt Disney World Resort in Florida, which is scheduled to open next year, will showcase its replica at its Animal Kingdom. The California State University contribution will be rewarded by providing California dinosaur scientists with research access to Sue. The Field Museum paleontologists will spend the next two years, studying, cleaning, and reassembling the skeleton. The museum plans to place the fossil on public display by the year 2000.



A skeletal reconstruction of Sue.

Global Fossil Mania

It might seem reasonable to conclude from the auction that museums are, contrary to their protests, able to pay high prices for spectacular specimens. However, it should also be pointed out that the $8.4 million spent on a single specimen might have more effectively been used to fund many years of valuable field work, educational programs, and museum displays.

The struggle over Sue and her internationally publicized sale are the most notorious episodes yet of a global fossil mania that has significant implications for the nation's land managers and natural resource scientists, especially paleontologists in the western states.

In recent years, the market for collectible fossils has exploded. The price of these specimens has increased faster than that of English antique furniture, American folk art, or classic cars, according to a 1994 report by **Dan Chure**, a National Park Service paleontologist at Dinosaur National Monument.

Pocket knives with polished dinosaur bone handles, New Age 'spirit bundles' containing fossil fragments, and similar objects are at the low end of the burgeoning commercial market, while 50-million-year-old fossil fish, turtles, and palm fronds are offered as incentive awards and tabletops in tony 'designer' and 'executive' series.

In addition to the hundreds of commercial fossil dealers across the nation, there are thousands of amateur collectors who buy, sell, and trade informally among themselves. The World Wide Web has accelerated the trade, especially in dinosaur fossils, with Internet outlets such as *The Dinosaur Store, Mr. Z Rex, Two Guys' Fossils, PaleoSearch*, and *Treasures of the Earth*.

The American Association of Paleontological Suppliers, which supplies museums and private collectors, has 120 members. There were 20 such dealers a decade ago. The U.S. trade in fossils averages between $3-5 million annually, the association estimates. Yet the booming American market may be driven by even larger overseas sales. Shows in Tokyo and Munich that cater to the international demand for collectible fossils dwarf the annual Tucson Gem and Mineral Show.

Many of the fossils offered for sale are similar to those found on U.S. public lands—in national grasslands, recreation, and wilderness areas, as well as in national parks and monuments. Fossils on federal land are the property of the U.S. Government, which regulates their collection under several laws. (See accompanying article.) Once a specimen has been removed from the ground, it is nearly impossible, without other evidence, to tell whether it came from private or public land.

Lauri Bryant was hooked on fossils early. She still has a collection of fossilized clam shells she made when ten years old. After earning her Ph.D from the University of California—Berkeley, she taught, did research, and helped write and edit books on fossils. In 1991, Lauri assessed fossil resources on public lands in Owyhee, Custer, and Lemhi counties for BLM's Boise State Office. She's been with the Wyoming State Office since 1992, working as senior technical specialist for fossil resources. Photo by Mike Bies, BLM Worland District Office

At left, a crew from the Museum of the Rockies (Bozeman, Montana) excavates a duckbill dinosaur skeleton on BLM-administered land. The skull is in the plastic jacket at bottom. Below, Bernie Weynard, the assistant area manager for the Green River Resource Area in Wyoming, examines a pit where unauthorized excavation for 50-million year old fossil fish has caused extensive surface damage. The site is in Sweetwater County, Wyoming. Photos by Lauri Bryant

Implications for Land Managers

The unprecedented amount of money that was paid for Sue has already inspired owners of private land to now sell or lease collecting privileges on their property to the highest bidder. Paleontologists who, until recently, had friendly agreements with these property owners and were allowed to collect fossils at no cost, have begun to find themselves priced out of many areas.

Commercial collectors may be able to afford to pay for access to fossils, but few academic paleontologists will be able to do so. Although movies like *Jurassic Park* and *Lost World* have made millions for their studios and investors, there is little evidence that the profits have been passed on to support the basic science that made these huge money-earners possible. It is reasonable to expect, then, that academic paleontologists will rely increasingly on public lands as the source of fossils they study and as places where they train their students.

Organizations like **EarthWatch** and **Dinamation** already take paying customers to work with permitted paleontologists on public land, and financial pressures from private landowners will likely increase that trend. There has also been speculation that unauthorized collecting on public lands will increase as access to private land becomes more expensive.

BLM and other federal and state land managing agencies can expect to see increasing numbers of permit applicants. Some will be qualified paleontologists driven off private lands by rising prices. Others may be people who want vertebrate fossils for their private collections but don't want to buy them, but collecting permits aren't issued for this purpose.

Many people believe that resources on the public lands should be available to anyone, without restrictions. There have been some efforts by commercial collectors and hobby groups to loosen the legal protections on collectible fossils. In 1996, HR 2943, the Paleontological Resources Preservation Act, proposed allowing the collection of vertebrate fossils for commercial and hobby purposes with very little regulation. The measure was not acted on in committee. But pressure from fossil dealers is expected to continue for legislation that would allow the commercial collection of fossils on public lands.

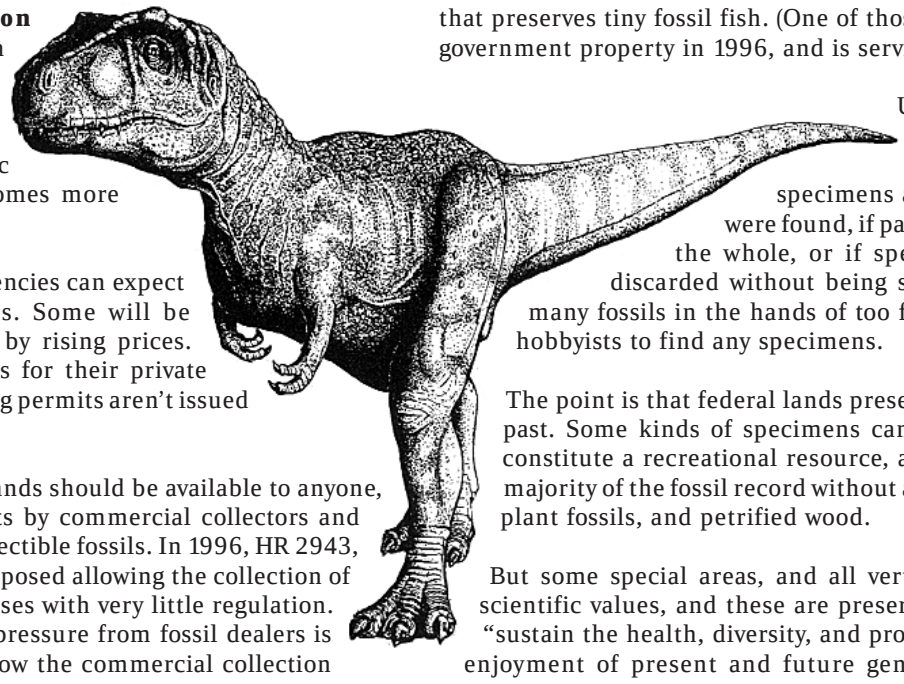
BLM's administrative load will increase as staff spend more time evaluating applicants' qualifications and the scientific basis for their proposals, tracking the progress of their field work and the adequacy of their reports, and watching for unauthorized use. Additional permitted individuals will provide increased amounts of locality information that will need to be integrated into BLM's planning system. (I'm not complaining. I'm glad to have the data, but the integration will have to be done.) And land managers may need to increase patrols and oversight in areas where there are significant fossils to educate hobby collectors, prevent unauthorized use, and develop strategies for investigating violations.

Some Closing Thoughts

The American public is fascinated by fossils. The dinosaur craze, far from dwindling, is gathering momentum. For Interior land managers and resource scientists, this interest is reflected in the increasing number of hobbyists and tourists who want to see and collect fossils—especially dinosaur remains—on public lands.

On the positive side, dinosaurs are one of the best gateways to science for children. A wide variety of topics, including evolution, animal behavior, biophysics, and population dynamics, can be taught using dinosaurs as examples. On the down side, many areas of public lands are being denuded of fossils.

There are places in southwest Wyoming where legal petrified wood collectors now excavate several feet down in order to find specimens. Twenty years ago, good finds were on the surface. Not far away, the landscape is scarred for miles where illegal collectors have used backhoes and other mechanized equipment to get at a thin layer that preserves tiny fossil fish. (One of those collectors was convicted of felony theft of government property in 1996, and is serving 24 months at Florence, Colorado.)



Unregulated collecting—especially for vertebrate fossils—could result in a tremendous loss of scientific value if specimens are removed from the context in which they were found, if parts of a specimen are taken without collecting the whole, or if specimens are carelessly collected and then discarded without being studied. The practice also can result in too many fossils in the hands of too few individuals, and in the inability of some hobbyists to find any specimens.

The point is that federal lands preserve a unique record of America's prehistoric past. Some kinds of specimens can be found in sufficient numbers that they constitute a recreational resource, and BLM allows hobby collecting of this vast majority of the fossil record without a permit. Hobbyists can collect invertebrates, plant fossils, and petrified wood.

But some special areas, and all vertebrate fossils, are thought to have special scientific values, and these are preserved in the public trust. BLM's mission is to "sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations." That language applies to fossil resources.

THE LAW

The BLM regulates the collection of fossils on public lands under its jurisdiction under the following laws: The Federal Land Protection and Management Act, Sec. 310 and 302(b); the Materials Act, 30 USCA Sec. 601 and 611. BLM regulations at 43 CFR 8365.1-5 and 3622 provide direction on what individuals who wish to collect fossils on public land may do. Other Interior and federal agencies have similar authorities and policies for the lands they administer.

Individuals may collect reasonable amounts of common invertebrate fossils (such as corals, ammonites, and tribbites) for noncommerical use—that is, the fossils cannot be sold, bartered, or traded. Petrified wood may also be collected, though each person is limited to 25 pounds per day plus one piece (the weight of which is not specified) up to a total of 250 pounds per year. Larger specimens of petrified wood may be collected under a free use permit issued to museums and the like, or for commercial use if a permit is obtained under the Materials Act.

Vertebrate fossils—dinosaur bones, fish, shark teeth, mammals, footprints, and the like—may only be collected under a permit. BLM issues permits to qualified paleontologists who agree to put their collections into repositories where they remain the property of the Federal Government and are accessible for study, education, and public enjoyment.

BLM issues about 100 Paleontological Resources Use permits every year. Usually each permit holder brings about ten other people—students, volunteers, amateurs, elder hostel participants, Scouts, and local residents—into the field to learn about paleontology first hand.

The permit process accomplishes several goals. First, it lets the BLM know where fossils of scientific interest exist on public lands. The applicants specify areas where they want to work, and that indicates where the fossils are. It also gives BLM a chance to examine those areas for other protected resources—cultural objects, threatened and endangered species—before the paleontologists start work.

Permits have been issued, for example, that require paleontologists to avoid clumps of Opal phlox and prairie dog towns where black-footed ferrets have been released. Collectors can also be directed to set up their camps away from protected resources, such as a group of teepee rings or other archeological remains.

Second, the permit process provides information about fossil localities that are used in the BLM's planning process. Each permit holder must submit an annual report with detailed information. When BLM anticipates development such as roadbuilding that involves surface disturbance, the files are used to determine if there are any fossil localities in the area, so that BLM can require assessment or mitigation, if necessary, as the project develops.

And third, the permit process lets BLM officials know what fossils were collected and where they are being kept. These specimens belong to the American people, and ensuring that they are accounted for and cared for is the BLM's job.

GPRA — A Gameplan for Winning Public Confidence

Lets face it! Polls have shown a long and steady decline in public confidence in government at all levels—state, local, and national. Many American taxpayers feel that government is neither efficient nor effective and are demanding as never before that the dollars they invest in their government be managed and spent responsibly. They are also demanding that federal agencies do their jobs with fewer people at lower costs.

This presents an enormous challenge to federal agencies, policy leaders, and program managers. What can an individual employee possibly do about it, you ask?

How about helping to change the culture that has contributed to the loss in public confidence, while also helping yourself. A major transformation is taking place in the way government agencies plan, budget, and conduct their activities, requiring federal employees to change the way they view their work, carry out their day-to-day activities, and account for their efforts. It's called GPRA—after its 1993 authorizing legislation, The Government Performance and Results Act. This goal-oriented, results-based approach offers federal workers a critical opportunity to earn back the public's trust. It provides a way to show the American people real results for the taxes they pay.

But you've seen an alphabet soup of management initiatives before, you say, ticking off PPBS (Program Planning and Budgeting System), MBO (Management by Objectives), ZBB (Zero Based Budgeting), and TQM (Total Quality Management.) So GPRA? What's one more? Right.

No. GPRA is the law, while those other acronymed efforts were Executive Branch initiatives. No matter how commendable, they were without the force of law or the support of the Congress. GPRA was drafted and enacted in a results-oriented environment spurred by year-in, year-out budget deficits and public dissatisfaction with burgeoning but ineffective government. GPRA has strong bipartisan support to address these problems on a governmentwide basis. As a statutory tool, it won't come and go with each Administration.

But you're just doing your job, you say, down in the trenches, working your program, pushing the project, carrying out a law. Won't that continue? What's GPRA going to do for you personally?

In the 1990s, if a program or agency cannot set clear goals and achieve tangible results, that organization calls into question the basic reasons for its existence and the quality of its management. "The inherent appeal of government programs will not be enough [to justify them]," explains **Frank Raines**, the director of the Office of Management and Budget. "Not even Congressional support will be enough; agencies will have to show quantifiable results. Those who can't will come out on the shorter end of those who can." Furthermore, Raines explains, "a major reason for the deep dissatisfaction with government in this country is that we poorly explain to the public why the government does what it does."

GPRA can provide you a better understanding of how your work contributes to your agency's success in meeting its goals. It forces a shift in the focus of federal agencies—away from such traditional concerns as staffing and activity levels and toward a single, overriding issue: results. It can help you, your group, and your agency to answer the public's questions about what taxpayers get for their hard-earned dollars. And that should go a long way toward restoring their faith in the ability and interest of the government to do the right thing.

It's getting too complicated, you say, there's already too much work, not enough workers. You don't have the resources to worry about results. Why can't we just go back to the way things used to be?

You chose the federal government, probably because you care about the common good and feel you have something to contribute. Whether you like it or don't, federal service is one of the most demanding jobs in society right now. Besides, things really weren't easier in the good old days. Memories often gloss the frustrations, the pains, the inefficiencies of earlier times. Be open to change, to continuous learning, to contributing your talents to team work. The country needs you and you're up to it.

The Interior Strategic Plan

GPRA required federal agencies to submit a strategic plan to Congress and the Office of Management and Budget by Sept. 30, 1997. The plans set the general course and direction for what agencies will be doing over the next several years. Interior's plan, which covers 1997-2002, provides employees with clear goals and strategies to help meet the Department's mission and fulfill its commitments to the American people.

From an employee perspective, the plan more directly links the contributions of individuals and units to overall organizational goals. It focuses on tangible results, forces attention on mission and goals, as well as strategies for measuring and achieving success. It encourages new ways of thinking about how to achieve results and determines what organizational units contribute to that success. And it provides a better framework for daily management decisions. Perhaps most importantly, the plan forces employees and organizations to articulate the value that they create for the public.

Because Interior's eight bureaus are the principal operating arm for accomplishing the Department's work, the plan was guided by the management and planning needs of the bureaus as well as GPRA's requirements. Employees at all levels were involved in the development of the goals, including the hundreds of Interior program leaders and managers who will be held accountable for achieving those objectives. The plan consists of eight bureau plans, which address the major programs within the Department, and a Departmental overview, which provides linkage to the individual bureau plans through an Interior mission statement, summary of goals, description of cross-cutting initiatives, and a strategy for accomplishing goals.

As you doubtless already know, Interior's mission is to protect and provide access to the nation's natural and cultural heritage and honor its trust responsibilities to tribes. The bureaus' mission statements reflect their specific role in accomplishing this overall mission. (See the bureaus' news pages for their strategic plans.) The strategic plan sets out ten overarching **Departmental commitments to the American people** that flow from Interior's mission and guide individual bureau strategic plans and goals.

Overall, the bureaus list 350 long-term, outcome-related **performance goals and associated performance measures**. They cover the range of Interior's diverse programs and the means of evaluating progress—or the lack of it—toward those objectives. The emphasis is on outcomes, rather than just inputs and outputs. Ultimately, success is measured by the differences that programs and activities make. For example, a training program can report on the number of participants—output. Or it can report on the changes in the real wages of its graduates—outcome. While the latter cannot occur without the former, the difference between the two measures is the key to understanding government performance in a results-oriented environment.

Our Special Obligation

"The American people are seeking greater accountability from their government. As the steward and guardian of this great Nation's natural resources and cultural heritage, this Department has a special obligation to future generations of Americans. We are meeting this challenge by setting ambitious performance goals and seeking new ways to better serve the American people. With this strategic plan we will meet those special obligations and our stewardship responsibilities."

Secretary Babbitt

Interior's Commitments To America

We will . . .

- *Restore and maintain the health of our lands, waters and renewable resources.*
- *Preserve the nation's natural and cultural heritage for future generations.*
- *Provide recreational opportunities for the public to enjoy natural and cultural resources.*
- *Provide for appropriate commercial use and development of federally managed natural resources in an environmentally sound manner.*
- *Encourage the preservation of diverse plant and animal species and protect habitat critical to their survival.*
- *Work to transfer federal program operations to tribal governments through Indian self-determination and self-governance agreements.*
- *Protect and conserve the trust resources of American Indians and Alaskan Native Tribes and work with these tribes to enhance education, economic opportunities, and the quality of life for their members.*
- *Advance scientific research and monitoring to improve our understanding of the interaction of natural and human systems and to reduce the impacts of hazards caused by natural processes and human actions.*
- *Provide useful scientific information for sound resource decision-making.*
- *Apply laws and regulations fairly and effectively, placing priority on compliance and enforcement, prevention, problem-solving, and protect public health and safety.*

Consultation and Coordination

A Strategic Planning Steering Group within Interior coordinated the development of the plan. The group consists of senior planning officials from each bureau, as well as representatives from the Department's planning, budget, and financial management offices and the Office of Management and Budget. Senior management groups within the Department, such as the Interior Management Council and the Interior Policy Group, also participated in the strategic planning process on a regular basis.

Interior coordinated and consulted with the Congress and other federal, state, and local agencies, tribes, stakeholders, and customers in developing the bureau and Departmental plan. The bureaus used a variety of approaches. For instance, the Fish and Wildlife Service organized a series of listening conferences around the country with a wide range of stakeholders, both internal and external to the Service. The Service also conducted a survey of about 700 external stakeholders and 300 employees.

The Bureau of Land Management began its planning process with the BLM Summit in 1994 which brought managers, state and local government officials, and constituents together to evaluate BLM programs and identify the most important issues and opportunities confronting the agency over the next five years. Five goals emerged that have evolved through a comprehensive planning and validation process into the goals of the BLM strategic plan.

External coordination included a broad range of activities, from posting of the plans on the Internet for public comment, to meetings with customers and stakeholders around the country, to sharing plans with other agencies with similar activities. In addition, Interior established the Natural Resources Performance Management Forum in 1995 to discuss related strategic goals and coordinate agency planning activities. The forum, which meets monthly, includes the Bureau of Land Management, the Fish and Wildlife Service, the Forest Service, the National Park Service, the Bureau of Reclamation, the U.S. Geological Survey and other federal and state agencies.

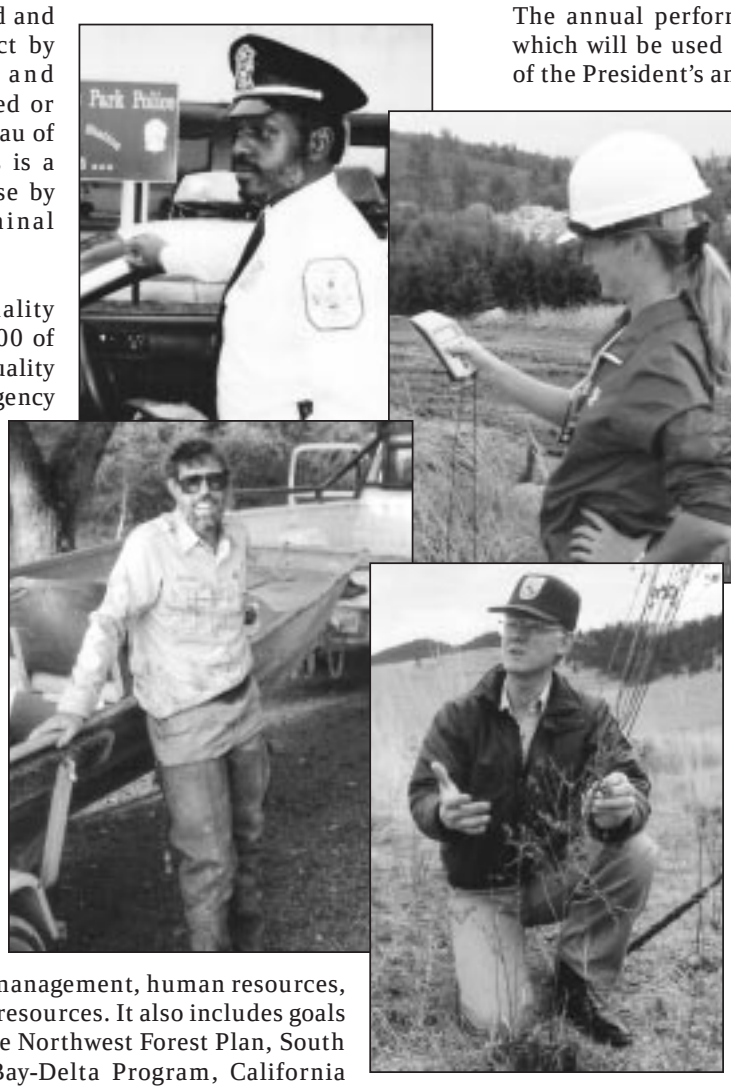
Interior's Strategic Planning Steering Group includes, from left (front row) Joann Schneider, FWS; Kathy Tynan, FWS; Carl Zulick, BLM; George Triebsch, OS; Jim McDivitt, BIA; (back row) Barbara Desiderio, MMS; Heather Huyck, NPS; Gary Hill, USGS; Bruce Fye, OSM; Mike Brown, NPS; Jody Kusek, OS; Charlie Towle, OS; Karen Pedone, BOR; John Mahoney, OS. Photo by Tami Heilemann

Developing Interior's strategic plan involved intensive evaluations of all the bureaus, programs, and offices in the Department. Bureaus developed planning processes that best suited their unique sets of enabling legislation, programs, customers, and stakeholders. The National Park Service, for example, used the *Vail Agenda*, the result of the 75th Anniversary symposium "Our National Parks: Challenges and Strategies for the 21st Century" as a starting point for their GPRA planning process. The *Vail Agenda* was the focus of an intensive review and evaluation of the responsibilities and prospects for the national park system. The Bureau of Reclamation and the Office of Surface Mining used the evaluations and information generated by their recent reorganizations and program realignments as a foundation for their planning processes.

Examples of specific, quantifiable goals from the strategic plan include (from the National Park Service section): achieving a visitor satisfaction level of 80 percent by 2002, measured by visitor surveys; and replacing or upgrading 35 percent of employee housing units classified as in poor or fair condition in 1997.

Examples from the Fish and Wildlife Service plan include the following: 20 threatened and endangered species have been recovered and delisted under the Endangered Species Act by 2002; and 40 percent of endangered and threatened species populations are stabilized or improved by the same year. Among the Bureau of Indian Affairs' five-year performance goals is a Tribal law enforcement objective to increase by ten percent the clearance rate of criminal investigations that identify offenders.

The USGS has set its National Water Quality Assessment Program a goal for the year 2000 of completing the first national-scope, water-quality assessment report for high-level federal agency officials and the Congress that is based on consistent and comparable information collected from 20 of the most important river basins and aquifers in the nation. A Bureau of Reclamation five-year strategic goal is to correct deficiencies at 23 identified dams. These structural modifications will be considered complete once construction activities have been completed to the extent that the intended risk reduction has been achieved for continued reservoir operations.



In addition to each bureau's goals and measurements, Interior's strategic plan addresses cross-cutting areas and functions within the Department. For example, the plan includes Departmental goals and performance measures for several internal management functions, including financial management, human resources, procurement and property, and information resources. It also includes goals for other cross-cutting initiatives, such as the Northwest Forest Plan, South Florida Ecosystem Restoration, CALFED Bay-Delta Program, California Desert, and Wildland Fire Management.

Performance and Accountability

Accountability for fulfilling commitments and achieving goals will exist throughout the Department. Annual performance plans are directly linked to the Department's strategic plan. The performance plan includes measurable annual performance goals for each fiscal year to meet the longer term goals in the strategic plan. The annual performance plan will be submitted to the Congress with the budget request each year.

Beginning in March of 2000, Interior will submit to the President and the Congress an **annual performance report** for the previous fiscal year. The reports, which will be submitted within six months after the close of each fiscal year, will review the Department's success in achieving the performance goals established in its annual performance plan. Where those goals have been achieved, the underlying assumptions and strategies will be examined to ensure that goals and associated performance measures continue to be applicable. If goals are not met, the bureau will conduct an analysis of why they weren't and the recommend actions needed to meet the goals. If the performance goal is impractical or not feasible, the report will document why and recommend action.

The annual performance plans are linked to the budget. They provide information which will be used in formulating **Interior's budget** request to OMB, which is part of the President's annual budget request to the Congress. Interior's budget will identify the programs, activities, and resources necessary to carry out the strategic plan and the yearly performance plan. Several budget-related assumptions underlie the strategic plan: Interior budgets will be constrained as the government works toward a balanced budget by 2002; staffing levels will remain relatively constant in keeping with streamlining targets; financial support of other organizations for partnership arrangements will continue near present levels; there will not be major changes in mission responsibilities or laws that significantly increase the cost of providing goods and services to the public. If any of these assumptions change, Interior's ability to achieve the strategic and performance goals may be affected.

The transition to a results-oriented, outcome-based organizational system will not be easy, nor will it be quick. Strategic planning under GPRA is a dynamic process that evolves as agencies learn from experience, adopt best practices from other agencies, and adapt their plans to reflect changing needs and circumstances. There will be annual reviews of the strategic plan to determine if changes or modifications are necessary. Minor modifications will be handled through the annual performance plan, while major changes will require revisions to the strategic plan.

Traditional methods of program evaluation also will continue, including reviews and audits by the Office of the Inspector General and the General Accounting Office. Management control reviews will continue to be conducted on a rotating basis among the various program and functional areas under a five-year plan established for the programs. These reviews examine whether adequate controls are in place to assure intended results are achieved, resources are protected, and management information is accurate and reliable.

Ultimately, Interior's commitments and goals will be accomplished by the more than 60,000 Interior employees who deliver goods and services to the Department's customers—the American people. The bureaus are responsible for allocating fiscal, human, and physical resources in the most effective manner to achieve their goals and objectives. For the Department, the sum of bureau and program office success will indicate the overall success of Interior in fulfilling its commitments to the American people.

The entire strategic plan is available on the Internet at www.doi.gov/fysp.html

U.S. Geological Survey

USGS science for a changing world

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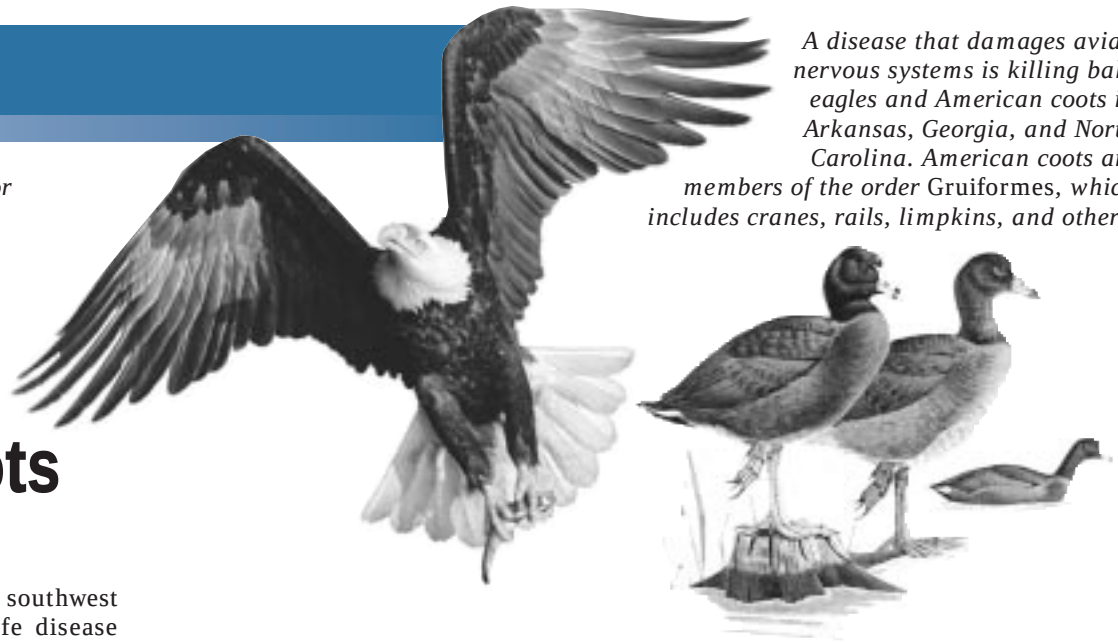


A disease that damages avian nervous systems is killing bald eagles and American coots in Arkansas, Georgia, and North Carolina. American coots are members of the order Gruiformes, *which includes cranes, rails, limpkins, and others.*

Mystery Disease is Killing Bald Eagles, American Coots

Paul Slota and Catherine Haecker

A mysterious disease that has killed bald eagles and American coots in southwest Arkansas may now be present in two other states, according to wildlife disease specialists at the U.S. Geological Survey's National Wildlife Health Center in Madison, Wisconsin.

A small number of coot deaths in North Carolina and Georgia have been linked to this disease, which affects the brain and central nervous system by creating holes in the myelin layers that insulate the nerve bundles.

"Myelin coats the nerve bundles much like the plastic coating around electrical wire, and when the coating is damaged it can short-circuit the nervous system," said **Dr. Nancy Thomas**, the center's veterinary pathologist.

In the winters of 1994 and 1996, this disease killed at least 55 bald eagles at three lakes in southwestern Arkansas, along with an unknown number of coots. No other birds or mammals have been found to be affected. "Despite the exhaustive efforts of federal, state, and private sector scientists, the cause or source of the disease remains a mystery," said **Dr. Kimberli Miller**, a wildlife disease specialist at the center.

Other disease agents known to affect birds, including bacteria, viruses or parasites, have been ruled out, and while microscopic evidence suggests that a neurotoxin may be the cause, tests for natural and man-made toxins that can cause this type of disease have so far been negative. Miller said that field investigations led by the center are underway, and scientists are hoping that clues from the new locations will help to reveal the cause of the disease.

Wildlife managers throughout the nation are asked to observe coot populations for disoriented or uncoordinated behavior such as erratic flying or impaired ability to swim or dive. The public is urged to report observations of sick or dead eagles or coots to Dr. Kimberli Miller, National Wildlife Health Center, (608) 270-2448.

UNDERGROUND FLOW OF NITRATE COMPLICATES CHESAPEAKE CLEANUP

Donovan Kelly

About half the high nitrate concentrations in nontidal streams and rivers that contribute to the decline of fish populations in the Chesapeake Bay come from underground sources, according to USGS research. "These findings will have strong implications for the management of nitrates in the bay," said USGS hydrologist **Dr. Joseph Bachman**. "Most past management practices have focused on the more obvious contributions of nitrogen from surface runoff." Bachman, leader of the team that conducted the research, presented the initial results at the annual American Geophysical Union meeting in San Francisco, California, Dec. 8-11.

"Our research in the Chesapeake Bay basin has shown that the average travel time of underground water, or 'ground water,' from when it enters the water table to when it discharges to a stream or river, is 10 to 20 years. The longest measured traveltime was about 50 years," Bachman said. "Even if tighter regulatory actions were able to eliminate the runoff of nitrate from the land surface, it will take decades for all of the nitrate to be flushed from the underground reservoirs or aquifers." Noting that previous research had shown that ground water was a significant water quality factor in some parts of the Bay watershed, Bachman said, "This is the first time that we have systematically examined the contribution of ground-water nitrate across the entire 64,000-square mile area of the watershed."

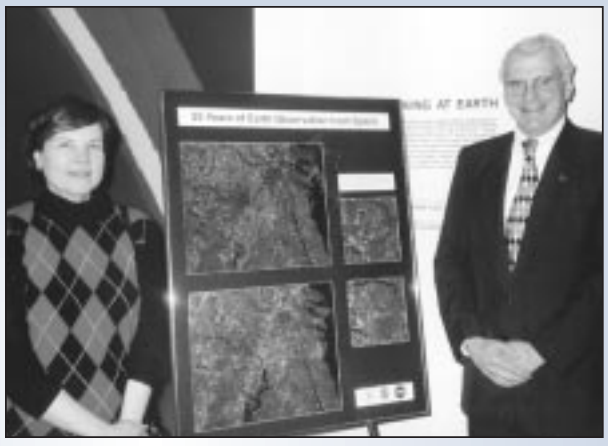
Nitrate is a nutrient, or plant fertilizer, and large amounts in streams contribute to algal blooms in estuaries such as Chesapeake Bay. As the algal blooms die and the algae decomposes, dissolved oxygen concentrations in the water drop off to levels harmful to fish and other aquatic life. Nitrate enters ground water from nitrate dissolved in rainfall and snow, gases from motor vehicle emissions, lawn fertilizers, septic tank drain fields and the use of inorganic fertilizer and manure on farm fields. Ground water slowly flows through cracks and pore spaces in rock and sand reservoirs called aquifers before discharging to streams, rivers, lakes, and estuaries.

The study showed that ground-water discharge accounted for roughly half of the nitrate flowing into the bay from non-tidal streams in the bay's watershed. The study team based these figures on available stream-discharge measurements and chemical analyses of water samples collected between 1972 and 1992 by the USGS and other state and federal agencies. More than 10,000 samples had been collected for chemical analyses at 127 sites. These data were used to compute the annual "load" of nitrate passing by each site, measured in tons of nitrate per year.

Samples collected during periods of low river flow, or "base flow," are thought to come primarily from the discharge of ground water. Nitrate loads computed from base-flow samples were then compared to nitrate loads computed from samples collected under all flow conditions. Base-flow and total-flow nitrate loads could be computed at 57 of the 127 stations. The percentage of base-flow nitrate load to total-flow nitrate load ranged from 26 to 100 percent with a median value of 56 percent.

Chesapeake Bay is the largest estuary in the nation, and its 64,000-square-mile watershed is one of the largest in the world in relation to the size of the estuary. Nitrate contributions from such a large drainage area can have strong effects on marine life in the bay hundreds of miles from the source of the nitrate. The watershed contains a wide range of rock types and topographic settings, and it includes major metropolitan areas, such as Washington, D.C., Baltimore, Richmond, Va., and Harrisburg, Pa., as well as forests, wetlands, and some of the most intensely farmed areas in the nation.

The researchers also investigated the effects of rock type, topography, and land use on the base-flow nitrate loads. Valleys underlain by limestone and similar rocks had significantly higher base-flows than areas underlain by other rock types, but similar relations between rock type and base-flow nitrate loads were as easily explained by the fact that areas underlain by limestone also have a high percentage of agricultural land, where nitrate is applied in fertilizers at high rates. "The relations are not clear," says Bachman. "We just don't have enough data yet to separate out the effects of land use from the effects of rock type and topography on base-flow nitrate loads."



Priscilla Strain, left, of the National Air and Space Museum's Center for Earth and Planetary Studies, accepts the Landsat images from Dr. Donald T. Lauer, chief of the EROS Data Center, which is the nation's archive of aerial and satellite imagery. In recent years, the center has also become the archive for imagery from NASA's Mission to Planet Earth.

25 Years of Landsat Imagery

Ron Beck

On Dec. 4, the USGS presented a framed set of Landsat scenes to the National Air and Space museum to mark 25 years of successful data acquisition by Landsat satellites. The image pair shows the Washington-Baltimore corridor and the demographic changes that have occurred in the region from 1972 to 1997. Enlarged sections of the scenes show development from Tysons Corner, Virginia, to Dulles International Airport. The satellite data, acquired by the USGS, are routinely used to measure and assess alterations to the land surface of the planet.

The Smithsonian's National Air and Space Museum is the premier public archive and showcase of the historic development of aircraft and space technology. Its staff is involved in studies for which the pair of satellite images is relevant.

1997 Saw Fewer But Deadlier Earthquakes

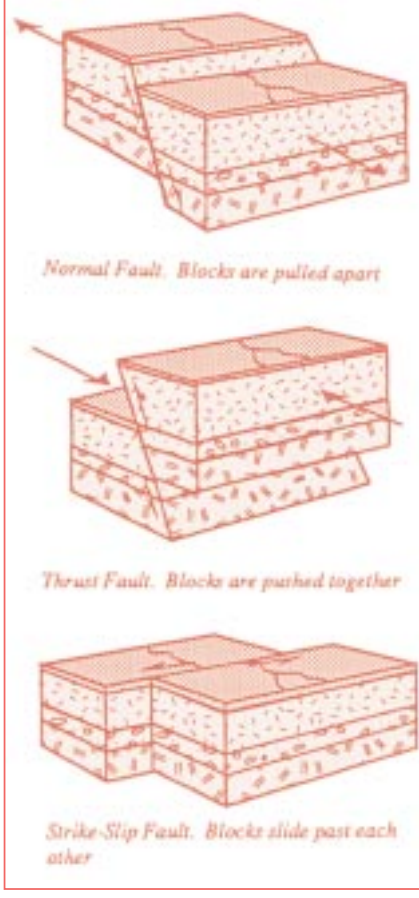
Diane Noserale

Seventeen major earthquakes (magnitude 7.0-7.9) were recorded in the world for 1997, according to **Waverly Person**, director of the U.S. Geological Survey National Earthquake Information Center in Golden, Colorado. This is just under the average of 20 major earthquakes each year. No great earthquakes (magnitude 8.0 and above) occurred in 1997.

Despite the lower number of major earthquakes worldwide (21 major earthquakes were recorded in 1996), the death toll from earthquakes was much higher in 1997 than in the previous year. In 1996, a total of 449 people were reported killed by earthquakes around the world. More than double that number were reported killed in just the first three months of 1997. The total death toll from earthquakes in 1997 is about 2,921.

The deadliest earthquake of the year struck northern Iran on May 10. Preliminary magnitude was 7.1. It caused at least 1,567 deaths, 2,300 injuries, and left 50,000 homeless. The strongest earthquake for the year in the conterminous United States had a preliminary magnitude 4.9 and struck the State of Washington. It caused slight damage at Bremerton and Poulsbo. Other significant earthquakes for the year occurred near the East coast of Kamchatka, Russia; near the coast of central Chile; and in central Italy, causing damage to the Chapel of St. Francis of Assisi. A significant earthquake is one of magnitude 6.5 or higher or one of lesser magnitude that causes casualties or considerable damage.

HOW EARTHQUAKES HAPPEN



The largest magnitude earthquakes in the world in 1997 had preliminary magnitudes of 7.9 and struck Xizang Province, Tibet; the Santa Cruz Islands in the western Pacific; and the Kamchatka Peninsula in Russia. The event in Xizang Province is believed to be the largest instrumentally recorded event in this area to date.

"We continue to hear from many people throughout the world that earthquakes are on the increase," Person said. "Although it may seem that we are having more earthquakes, this is not the case. In fact, earthquakes of magnitude 7.0 or higher have remained fairly constant throughout this century."

A partial explanation for this impression may be that in the last twenty years, USGS has been able to locate more earthquakes each year, according to Person. This is because of the significant increase in the number of seismograph stations around the world and the many improvements in global communications. This greater number of stations and the more timely receipt of data has allowed seismological centers to locate many small earthquakes that were undetected in earlier years, and to locate the quakes more rapidly. The improvements in communications have combined with an increased public interest in natural disasters to produce more information about earthquakes.

Also, the effect that earthquakes have when they strike is generally more pronounced—losses (both human and property) are greater today in many areas of the world. That is because the Earth's population is increasing and there is more property that can be destroyed, not because earthquakes are stronger. Although architects and builders know how to erect safer structures, many buildings, bridges, and highways around the world are still not built to withstand earthquakes.

USGS estimates that several million earthquakes occur in the world each year. Many of these go undetected because they occur in remote areas or have very small magnitudes. The USGS locates more than 18,000-20,000 earthquakes each year.

Heavy Breathing at Yellowstone

Heidi Koehler

Yellowstone National Park, the land of pristine scenery and wildlife, also "breathes," according to recent research conducted by **Kenneth L. Pierce**, a USGS geologist. He presented evidence showing that the central part of Yellowstone has been uplifting and subsiding or "breathing" over the last 9,000 years. The process has occurred at least five times.

"A 'breath' takes about one to three thousand years," Pierce said. "Inflation of about 25 feet has been documented, and if extended out to the edge of the historic dome, equals a rise or 'breath' of about 100 feet followed by deflation of a similar amount."

Pierce and his co-authors **Ken Cannon** and **Grant Meyer** have been studying the geology and archeology of the Yellowstone Lake shorelines and drowned valleys since 1991. "The volume of each breath is about 20 cubic kilometers; thus, whatever is driving this subterranean process is large, at present mysterious, and could be dangerous," Pierce explained. Pierce delivered these findings at the American Geophysical Union annual meeting in San Francisco as a part of a series in memory of **Rick Hutchinson**, a Yellowstone geologist killed in a backcountry avalanche last winter.

The USGS's Hawaii Volcano Observatory provides real-time on-line monitoring of Hawaii's lava-spewing volcanoes, including eruptions of Kilauea Volcano, above, in Hawaii Volcanoes National Park. More on Kilauea's 15 years of continuing rift activity and $100 million in economic damage on page 3.

Logging on to Natural Hazards & Informing Emergency Warning Systems

Pat Jorgenson

Scientists are developing new and powerful electronic information techniques to provide early warning of natural disasters and rapid notification of what is happening, as it happens. The challenge is to ensure that the information is used effectively to reduce the rapidly escalating costs of these disasters.

That was the core message underlying recent presentations by USGS scientists on real-time hazard monitoring systems and emergency information networks. The sessions took place at the annual meeting of the American Geophysical Union. During a special session on "Hazard Mitigation: Use of Real-Time Information," USGS scientists described their agency's real-time monitoring of volcanoes, earthquakes, and floods; how the data is conveyed to users; and how emergency-response officials and the public can use real-time data to save lives and protect property.

USGS volcanologist **Marianne Guffanti** opened the session by reporting on improvements in real-time monitoring of volcanoes and how the data can be used to warn people of risk to their communities as well as to airline travel as volcanic ash clouds make their way through the atmosphere. **Terry Keith**, a USGS researcher at the Alaska Volcano Observatory, discussed how volcanic ash clouds can be tracked through real-time monitoring of Alaskan volcanoes and how public warnings are issued before or during eruptions. He also presented examples of how volcanic mitigation efforts have saved lives and billions of dollars in property.

In a similar vein but with different types of volcanic eruptions, **Dave Sherrod** of the USGS's Hawaii Volcano Observatory, described real-time monitoring of that state's dramatic, lava-spewing volcanoes and how information and warnings concerning these eruptions are routed to the public through local emergency-response agencies. USGS hydrologists who were involved with the floods in the Ohio Valley and North Dakota in early 1997 presented examples of the collection and dissemination of real-time flood data.

USGS seismologist **Peter Ward**, who is chairman of the Working Group on Natural Disaster Information Systems under the Subcommittee on Natural Disaster Reduction in the Executive Office of the President, discussed ways to deliver real-time information to the specific people at risk. Ward's group is working on extensions of the Emergency Alert System that will allow broadcasting warnings of severe storms, earthquake shaking, volcanic eruptions, and rising floodwaters over radio, television, cellular telephones, pagers and the Internet. Ward also described national efforts to improve the flow of all types of disaster information over the Internet.

USGS researcher **Carl Martinson** reported on plans for cooperation between federal and state agencies and academic institutions to operate a technical clearinghouse to share information after major quakes in California. USGS seismologist **Lucy Jones** explained TriNet, a southern California network to record and analyze earthquake ground motions as they occur and distribute the information to emergency response agencies and the public. TriNet also will develop a pilot early-warning system that would allow scientists to know that a earthquake has begun before damaging shaking waves arrive at more distant sites and automatically inform warning systems of those fast moving waves.

Seismologists from the USGS in Menlo Park, California, described working prototypes of an inexpensive strong-motion seismograph for earthquake weather-radar in response and mitigation efforts and new ways to collect data on ground shaking. USGS seismologists from Golden and Albuquerque discussed new ways the Internet is being used to collect and distribute earthquake data collected around the world. And geophysicists from the USGS in Menlo Park presented applications of Global Positioning Satellites in monitoring the sway of tall buildings in seismically active areas.

A team of seismologists at the USGS in Menlo Park continued the earthquake theme by describing "near-real-time" intensity maps for large earthquakes in the San Francisco Bay area. They also briefed the group on CREST (Consolidated Reporting of Earthquakes and Tsunamis), a cooperative project among the USGS, NOAA, and west coast state disaster response offices. **Ed Cranswick** of the USGS in Golden, Colorado, explained PSN, a Public Seismic Network that will incorporate data from private citizens' backyard seismometers into public agency monitoring systems.

The USGS in 2005

The Vision and Goals of the Strategic Plan

Interior's strategic plan is on the Internet at www.doi.gov/fyst.html

The more than 10,000 employees of the USGS include research scientists, applied scientists, and many specialists and engineers devoted to the mapping, study, and investigation of earth science, natural science, and environmental issues.

The vision is an earth science organization that is recognized worldwide as scientifically credible, objective, and demonstrably relevant to society's needs. The mission is to provide the nation with reliable, impartial information to describe and understand the Earth. The information will be used to minimize the loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; enhance and protect the quality of life; and contribute to wise economic and physical development.

That is the vision and mission described in *Strategic Plan for the U.S. Geological Survey: 1997 to 2005*—the meticulously detailed game plan that will guide the agency into the next millennia. The plan also details the agency's response to the Government Performance and Results Act—how the USGS will demonstrate to the American taxpayers that the agency is effectively using their tax dollars to fulfill its critical responsibilities to the nation.

The present and future scientific and technical efforts of the USGS—its goals and objectives—are grouped under eight major business activities. Progress on achieving the goals and objectives will be evaluated under the annual performance plans (the budgets) and, if necessary, the programs and initiatives will be revised in accordance with those evaluations over the course of the multi-year plan.

To help manage the nation's **water resources** wisely for present and future generations, the USGS will provide reliable, impartial, timely data and understanding of the availability and quality of these resources. This information will enable decision-makers at all levels of government to plan, operate, and regulate their water resources infrastructures, and to undertake cost-effective programs to preserve and enhance water quality.

To help reduce the loss of life and property from **natural hazards**, the USGS will advance understanding of the fundamental processes that control or trigger hazardous events or situations; lead in developing real-time monitoring and warning systems; and enhance the use of hazard assessments by decision makers, in order to improve disaster response and mitigation planning.

USGS will acquire, produce, manage, and disseminate geospatial data (**geographic and cartographic information**); cultivate partnerships with other government organizations, academia, and the private sector for those activities; provide leadership in establishing national geospatial data policies and standards; and conduct a geographic research and development program focused on interpretation and application of geospatial data.

To reduce both **environmental contamination** and the cost of cleaning up existing contamination, the USGS will identify and define the occurrence and effects of contamination, broaden the basic understanding of contaminant hazards, and provide pertinent information to those concerned with mitigation and prevention.

The USGS will improve the **land and water use** decisions made by the public and private sector by providing integrated earth science information about land and water use in support of management and other policy decisions, develop analytical tools for improved decision making, and enhance the understanding of how natural processes at the Earth's surface are affected by changes in climate and/or land and water use.

To enhance economic development and growth, the USGS will determine the location, quantity, and quality of **nonrenewable resources** (metallic minerals and fossil fuels) both internationally and domestically; determine the environmental effects of resource extraction and use; and improve assessments of resource potential, making possible the formation of the best strategies for development of future resource supplies.

USGS will meet its goal of lessening harmful **environmental effects on human health** by reducing the risks to human health from hazardous chemicals and disease-causing organisms. This will be achieved by providing information on the occurrence of environmental toxins and pathogens and the factors affecting the rate and transportation of these agents from their sources to humans.

To help conserve and mange the nation's **biological resources**, the USGS will provide reliable, impartial, and timely data on the status and trends of the nation's biological resources; provide an understanding of biological systems, and assess natural and human induced changes to those systems.

Under each of these goals, specific objectives and performance measures are described, including studies, investigations, assessments, and other research initiatives and activities; partnerships, networks, and other cooperating efforts with state, regional, and private sector stakeholders, partners, and academia. The objectives have specific completion dates and numerical or other quantifiable outcomes. Each budget cycle will serve as the annual performance evaluation on progress being made to achieve the objectives.

The USGS plan is based on a series of assumptions—driving forces—that affect the process. These include devolution (the reinvention and downsizing of the federal government); new technologies; demographic changes; public investment in science; society's concept of the public good; tradeoffs between the economy and the environment; global interdependence; and scarcity and management of natural resources.

An underlying goal of the plan is maintaining and enhancing core competencies—the key skills, characteristics, and assets that the USGS must nurture and strengthen to excel in current and future business activities: impartiality, credibility, and scientific excellence; relationships and partnerships; a multidisciplinary workforce with a national presence; and long-term national data bases; long-term, broad-scale, multidisciplinary interpretive studies.

The USGS is committed to managing human resources in a way that steadily improves workforce diversity and retains skilled employees. Human resources planning and management initiatives, including targeted recruitment and other techniques that inspire mutual trust and confidence in the USGS's diverse clientele, are central to the achievement of the core competencies.

Polar Map Can Help Document Effects of Environmental Change

A new full-color map showing permafrost and ground ice over the Arctic and surrounding continental land masses gives a bird's-eye view of the North Pole and includes most of the northern hemisphere. It was compiled by an international team led by the USGS, the Geological Survey of Canada, and the Committee of Geology of the Russian Federation.

"This compilation will help researchers to document the effect of global environmental change," said **Bonnie McGregor**, USGS associate director. "This is the first time that data on the entire North Polar region and adjacent lands has been compiled into a single map. It provides consistent and current information on the location and extent of long-term frost and ice in the northern hemisphere," McGregor said.

When land has remained at or below zero Celsius (32 degrees Fahrenheit) for at least two years it is considered permafrost. Ground ice—frozen water within the ground—can occur as coatings on mineral grains and soils, as crystals in pore spaces of sedimentary rocks, or as veins, lenses, or sheets.

The map, entitled *Circum-Arctic Map of Permafrost and Ground Ice Conditions, USGS Circum-Pacific Map Series CP-45*, has a scale of 1:10,000,000. It was prepared by the International Permafrost Association, in cooperation with the Circum-Pacific Council for Energy and Mineral Resources. **Jerry Brown**, the lead editor on the project, unveiled the map on Dec. 11 at a poster session of the American Geophysical Union meeting in San Francisco. The map can be ordered for $4 plus $3.50 handling from the USGS. Please call 1 (800) USA-MAPS for more information on ordering

Gas Hydrate Studied as Potential Energy Source

Scientists are taking another look at methane in gas hydrate, which contains perhaps twice as much organic carbon as all fossil fuels on earth. This gas may prove to be an energy resource for the future.

On the negative side, the methane that migrates in and out of the hydrate reservoir may also be a strong influence in the global greenhouse as methane is a stronger greenhouse gas than carbon dioxide. Also, gas hydrate formation and breakdown clearly can cause instability of bottom sediments and affect sea floor structures, such as oil wells and pipelines.

Immense amounts of methane, in a crystalline state with water molecules, are contained in ocean sediments at depths greater than 500 meters. The material is known as gas hydrate. USGS scientists described research on gas hydrates in two sessions at the American Geophysical Union meeting in San Francisco, Dec. 8-9, 1997.

This work resulted from a major international gas hydrate drilling program carried out on the continental rise off South Carolina two years ago. Topics include identification of gas hydrate deposits by acoustic and well logging approaches, examination of the gas in the well and in the hydrate, and the "plumbing" of sediment fractures over a salt dome that allows escape of gas to the atmosphere.

Both articles by Diane Noserale

USGS Scientists Assess Climate Change Impacts on U.S., 6-7

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OSM SYMPOSIUM LOOKS AT FUTURE OF U.S. COAL MINING

George Stone, OSM Symposium Coordinator

A standing-room-only crowd of more than 200 participants at the OSM-sponsored Federal Coal Symposium heard experts discuss the future of the U.S. coal industry, including how it might fare under the Kyoto treaty on emission controls.

The Jan. 21 symposium at the South Interior Building provided a forum to focus on patterns, trends, and forecasts concerning the coal industry, said **OSM Director Kathy Karpan**. It also acquainted participants with the operations of federal agencies that affect coal and explored the best practices among federal agencies in evaluating program performance and results, including success measures, under the Government Performance and Results Act.

Presentations from Director Karpan, **Pat Shea**, the director of the Bureau of Land Management, and **Davitt McAteer**, the assistant secretary for Mine Safety and Health (U.S. Department of Labor), kicked off the morning plenary session. But it was **Bob Armstrong**, the assistant secretary for Land and Minerals, who made the big news.

Armstrong said that emission restrictions set by the international treaty negotiated last year at Kyoto, Japan, can be met without reducing the use of coal. The emission reductions can be accomplished by embracing technological advances to improve fuel efficiency and reduce pollution, he explained.

"We cannot turn our back on coal as an energy source," Armstrong said, addressing concerns that U.S. industry might have to use other energy sources to satisfy the treaty's requirements. "We do not have an alternative." His remarks were reported by the Associated Press and picked up by *The New York Times*, *Newsday*, *Fox News*, and the *Boston Globe*, among other national and regional papers. The symposium also was covered by West Virginia Public Radio and industry trade journals, including Greenwire, Mine Regulation Reporter, Inside Energy, and COAL Magazine.

The burning of coal releases carbon dioxide and other gasses into the atmosphere, which many scientists believe contribute to a greenhouse effect—the gasses trap heat from the sun, thereby increasing the Earth's temperature, creating global warming. The Kyoto treaty, which the Administration supports, sets limits on nations' emissions of these gases.

Additional symposium speakers included representatives from the Energy Information Administration, (Department of Energy), and a discussion panel that included **Gen. Richard Lawson**, president of the National Mining Association; **Joseph Brennan**, president of the Bituminous Coal Operators Association; **Jerry Jones**, vice-president of the United Mine Workers of America, and **Jim McElfish**, an attorney with the Environmental Law Institute.

Environmental group representatives from the Powder River Basin Resource Council and the Ohio Valley Environmental Coalition were also on the panel. The Ohio Valley group's presentation ended in an emotional, but contained, protest against mountain-top-removal coal mining in parts of West Virginia. The symposium extended through the afternoon with five breakout panel sessions on specific topics: technology; reclamation partnerships; outreach efforts to enhance public participation; patterns and trends in inspection; enforcement and permitting; and coal information management.

Attendees at the coal symposium came from within and outside government. Nearly all Interior bureaus, including the Bureau of Land Management, U.S. Fish and Wildlife Service, Minerals Management Service, Bureau of Indian Affairs, and U.S. Geological Survey, participated, as did officials from the Environmental Protection Agency, Department of Energy, and the Mine Safety and Health Administration, along with many experts form academia.

A summary compendium of symposium activities and information will be published at a later date. For additional information, contact **George Stone** at (202) 208- 7840 or gstone@osmre.gov

Major speakers at the Federal Coal Symposium included, from left, Kathy Karpan OSM Director, Davitt McAteer, assistant secretary of Mine Safety and Health (Department of Labor), Pat Shea, director of the Bureau of Land Management, and Bob Armstrong, assistant secretary for Land and Minerals.

Director Karpan is interviewed by Cecilia Mann, a reporter for West Virginia Public Radio

More than 200 participants attended the symposium in the auditorium of the South Interior Building.

Photos by Vic Christensen

Below, symposium participants view computer system demonstrations by OSM and DOE employees.

A plenary session panel presented its views of the factors likely to affect coal mining and coal use in 2,000 and beyond. From left, Carlos Gore, Ohio Valley Environmental Coalition; Rachael Nera, Powder River Basin Resource Council; James McElfish, Environmental Law Institute; Jerry Jones, vice-president of the Mine Workers of America; Joseph Brennan, president of the Bituminous Coal Operators Association, and Gen. Richard Lawson, president of the National Mining Association.

CLEAN STREAMS AND HUMAN RIGHTS

The Department's Clean Streams Initiative—cleansing coalfield streams of acid drainage from abandoned coal mines—is advancing the human rights of citizens in coalfield communities as well as restoring aquatic habitat in U.S. coalfields.

"Human rights are intimately involved with environmental quality," said OSM Director Kathy Karpan. "All the environmental restoration that we do is ultimately for the benefit of people and communities, as well as conservation of nature."

While the abandoned mine reclamation program, which includes the Clean Streams Initiative, is usually thought of as a program of environmental restoration, restoring streams at the same time means restoring communities and promoting the health and well-being of people, which is the goal of the 1948 Universal Declaration of Human Rights.

"Thousands of miles of Appalachian coalfield streams are still polluted by acid mine drainage, even though safe drinking water is a basic human need," Karpan said. "That's why acid drainage pollution has such a devastating impact on people's lives, as well as on the vitality of local economies and wildlife populations. In some places, acid pollution flowing out of abandoned coal mines has destroyed all plant and animal life in the stream."

Karpan said Interior's Clean Streams Initiative works by bringing together local coalitions and partnerships of citizen groups, university researchers, coal companies, businesses, environmental organizations, and government agencies. OSM provides seed money through federal grants from the national Abandoned Mine Reclamation Fund, which receives income from coal producers nationwide at the rate of 35 cents per ton of surface mined coal and 15 cents per ton of coal mined underground.

Nearly 80 state and federal agencies, local soil and water conservation districts, national conservation organizations,private foundations, and coalfield residents have formalized theircommitment to work together for Clean Streams through a Statement of Mutual Intent, Karpan said.

Treasures in our Midst

Edward Curtis, the last of the great 19th Century photographers of the American West, spent 25 years documenting Indian personalities, religious observances, hunting scenes, tribal customs, traditional clothing and artifacts. From 1896 to 1930, he amassed 40,000 glass plate negatives and published 20 volumes of text and photographs entitled The North American Indian. The sampling of his prints on these pages is from the Bureau of Indian Affairs extensive museum collection. At right, Curtis depicts a Nez Perce Brave wearing a classic war bonnet with lavish feather work and matching eagle feathers. Below, the Whaler-Clayoquot Indian of the Northwest Coast wears a handwoven robe of cedar bark, sea grass, and other fibers, and holds a thrusting harpoon.

Hopi bowl, circa 1900, with motif of large swirls of feathers and highly conventionalized birds.

A Party of Ogalala Sioux dressed in their characteristic traditional clothing with feather war bonnets and beadwork sashes, gathers on a hill overlooking the Valley of Wounded Knee Creek on the Pine Ridge Reservation in South Dakota.

Walter Ross-Wichita Indian depicts a leader of the southern plains farming tribe that now makes its home in southern Oklahoma.

A splint wood storage basket hand woven in the Cherokee style. Southeastern/Mississippi River tribes used river cane to make these baskets which have a twill weave on the bottom half.

An Acoma Woman depicts a Pueblo Indian wearing a traditional cloth shawl and silver and turquoise jewelry. The Pueblo Indians learned the art of making silver jewelry from the Navajo.

When **Marian Hansson** examines rare photographic prints of American Indians, her hands are gloved to keep human oils and acids from harming the 100-year old paper. As she positions a decorated Pueblo Indian ceramic piece for a photograph, she pauses to admire its intricate designs and high gloss colors. When cataloguing basket trays woven from sea grass by the Northwest Coast tribes, she seems mesmerized by the tightness of the coils.

For Hansson, these objects are much more than historic and valuable pieces of art. They are the keys to restoring, enhancing, and preserving the cultural pride and self esteem of Native American people. "These traditional artifacts by Indian artisans were not simply made or crafted in that narrow sense used today to describe the manufacture of an object," explains Hansson, the chief curator of museum property for the Bureau of Indian Affairs. "From beginning to end, their art and artisanship was a religious practice."

Prayers were made to the creator for supplying the raw materials used for making pottery or other items. An Indian potter dug clay from sacred sites, sometimes known only to the potter. The co-partnership with the gods bestowed a magical control of nature. Even the scrapers to smooth and finish a pot were treasured sacred items and were passed on from one generation to another.

The artifacts reflect the ideas, knowledge, experience, and distinctness of the Native American tribes. "Members of a particular tribe use certain techniques and create a particular style because that is their tradition," Hansson explains. "That is why Iroquois masks are strictly Iroquois and why Hopis in one village make only wicker baskets while their neighbors make only coiled baskets." Artifacts also reflected inter-tribal contacts and the exchange of ideas with other groups. As artifacts were traded, ideas were borrowed and adapted.

Marian Hansson's interest in American Indian cultures began as a child, listening with wonder to her family's stories of Kiowa history and traditions. She received her master's degree in Anthropology from the University of Oklahoma and was the first American Indian Fellow at the Smithsonian Institution. She joined the Department in 1992.

Hansson's knowledge and appreciation of Native American artifacts are not merely the product of her curatorial training, anthropology studies, and knowledge of American Indian cultures, art styles, and art techniques. They stem from her life experience. "I remember asking my grandfather about what was most important in life," she recalls. His name was James Two Hatchet and he was a well respected Kiowa political leader and religious person. "Spirituality, our culture, our family, understanding each other," he replied.

"And that is how I feel about the vast collection under the bureau's care," Hansson says. "A people's artistry and the knowledge of how and why that art was created is a key to understanding and maintaining their way of life. So what we are doing in the museum property program is not merely inventorying, cataloging, and storing 'objects' but helping towards preserving and strengthening Indian cultures, languages, and ways of life."

Throughout its history, the BIA has accumulated thousands of items of Native American art and artifacts of museum quality. The bureau now has an extensive and valuable collection of American Indian and Native Alaskan artifacts and artwork, illustrating a variety of art styles ranging from traditional to contemporary and innovative.

The B I A Collection

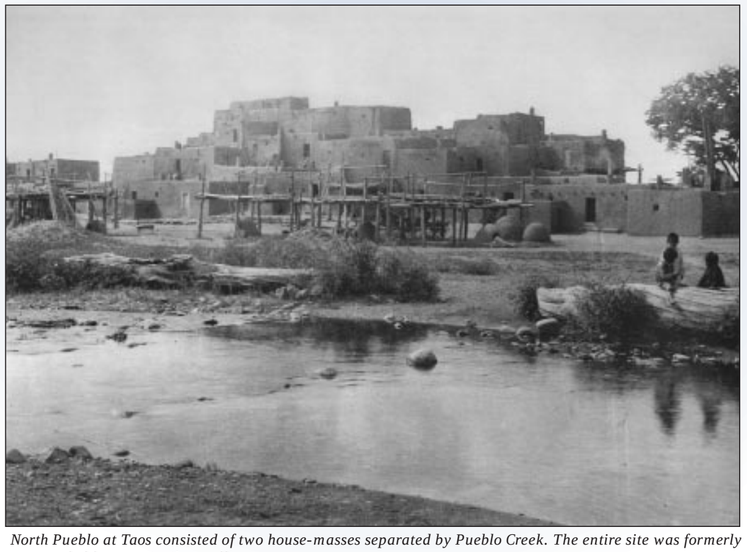
The collection also reflects the major culture areas that distinguish those American Indian tribes that were similar to each other from those that were different. Although the culture areas tend to coincide with ecological zones they blend into each other. Though the areas never existed as real entities in the lives of the American Indians, anthropologist use them to distinguish similarities and differences among the Indians—for example, the Eastern Woodland tribes from the Plains Indians, the Pueblo dwellers of the Southwest from the Northwest Pacific coast tribes.

The bureau's intensive and systematic collection of Native American artifacts began in 1933, when **John Collier** became Commissioner of Indian Affairs. He felt that the survival of American Indian arts and crafts was also a method of maintaining the native cultures—a critical element for the survival of an American Indian way of life.

"It is difficult to overstate the importance of Collier's initiative," Hansson points out. "For the preceding century—from 1833 to 1933—there had been little public or federal effort directed to the maintenance and preservation of Indian culture.

"To understand the long history of BIA's collection of Indian artwork and artifacts, let me tell you about how the first BIA artwork collection began," Hansson says. "In 1775, the Continental Congress established three departments of Indian Affairs later called 'trading houses.' Then in 1816, **Thomas Lorraine McKenny** was appointed to head the Washington, D.C. Indian Trade Office and he began collecting Indian artifacts and artwork to decorate his office. McKenny is one of the most significant yet least known figures in the history of the American Indian.

For almost fourteen years between 1816 and 1831, he administered the nation's Indian affairs, first as Superintendent of Indian Trade then as head of the Office of Indian Affairs. McKenny, who had the support of the Presidents and Congress during his terms in office, was a pioneer in the study of North American Indian ethnology, establishing in his office a remarkable collection of books, manuscripts, artifacts, and paintings, which he called his "archives and museum of the American Indian." After leaving office, he published the monumental History of Indian Tribes of North America. His collection of more than 130 oil portraits of tribal leaders were given to a Washington Art Gallery, which later became a part of the Smithsonian.



North Pueblo at Taos consisted of two house-masses separated by Pueblo Creek. The entire site was formerly surrounded by a protective wall.

Today, there are more than 70,000 items in the bureau's nationwide collection—a multifaceted inventory consisting of archeological collections, ethnographic items, historical documents, photographs, scientific items, and other records. About 90 percent of the artwork consists of gifts to bureau officials from Indian tribal leaders, artists, and other Native Americans.

McKenny

"These gifts were the most valuable possession a Native American owned," says Hansson, "but those tribal leaders and artists would rather give the artwork to someone to show appreciation, to reward kindness, or to honor friendship. The giving of gifts to honor someone such as a family member or respected official, for example, is a Plains Indian tradition," she explains.

In 1939 American Indian art displayed at the San Francisco World's Fair later became the property of the bureau's Washington, D.C. office. In 1972, the collection suffered a serious setback during the American Indian Movement (AIM) takeover of the bureau, when many valuable artifacts and works of art were destroyed, vandalized, and looted. The artwork and artifacts in the collection are found at many of the BIA offices throughout the United States. While the BIA's headquarters is located in Washington, D.C., most of its work is carried out in 12 area offices, more than 80 agencies, and 185 Indian schools throughout the country.

"The collection creates a link between the people, places, and events of the past, and those of the present and the future," Hansson notes—"the interactions of the American Indian tribes and individuals. But to maintain and strengthen that link, the items must be properly inventoried, protected, and preserved."

Conserving a Heritage

More than twenty federal laws and regulations mandate the care of the bureau's museum property to preserve these resources for posterity, to maintain Indian cultural development, to educate Indian people and others, and for scholarly research. The Inspector General of the Department of the Interior performed a Department-wide audit of Interior artwork and artifacts in 1990.

As a result, the museum property program began among all Interior bureau offices. The BIA organized and launched a program to train bureau area office staff. Trainees learned about the history of the bureau's museum property collection and appropriate methods of identifying and authenticating artwork and artifacts that qualified as museum property. They were given the technical expertise to care for, inventory, and document artwork, baskets, pottery, and rugs.

"Through the on-site training, we emphasized the importance of our responsibilities as custodians of federal property," Hansson says. "This was especially crucial because the area offices, agencies, and Indian schools do not have museums, but have culturally important artwork and artifacts (museum property). They recognized they had a responsibility even if they didn't have a formal museum."

The bureau has conducted an updated museum property survey. That survey will become part of the BIA Museum Property Report to the Department and the Heritage Assets Program, which in turn reports to Congress. The bureau also developed a museum property management action and long range plan, with time frames to identify and conserve BIA-wide artwork and artifacts.

Many Interior agencies are interested in American Indian art for their offices, and contact the bureau, which arranges displays for corridors, hallways, conference rooms, and offices. This wide appreciation of the value and beauty of this artwork is welcomed and provides the bureau an opportunity to further educate Interior employees and the public about American Indian and Native Alaskan art, history, and culture.

As a result of the bureau's museum property program, there is a renewed spirit in the field offices. "Many of our area field offices and Indian schools are developing beautiful displays which serve as reminders to our people of our public relations efforts in working with all people," Hansson points out.

The Juneau (Alaska) area office has created a beautiful display in the federal building and is listed on the city's walking tour for tourist. This positive effort has instilled pride in our BIA staff, Native Americans, and the public. And that is what preserving the treasures in our midst is all about," Hansson says.

Haida Slate Carvings depicts a miniature totem pole that a Haida artist carved out of soft black slate. Northwest Coast ritual totems were carved with legendary and clan designs.

National Park Service

Robert G. Stanton, Bureau Director
Ricardo Lewis, Bureau Editor

CC:Mail to *Rick Lewis at NP-WASO*

Lackey Joins Chamizal National Memorial

Lisa Lackey is the new division chief of arts and education for Chamizal National Memorial (Texas) where she oversees theater, festival, interpretation, and exhibition functions. Lackey joins the Chamizal staff after serving at the Grand Canyon National Park as supervisor of permanent and seasonal interpreters.

"Experience gained at the Grand Canyon in conducting slide programs, campfire talks, children's programs, inner-canyon hikes and other natural and cultural history walks and talks will add dimension to existing programs," said **Jock Whitworth**, acting superintendent of Chamizal.

Before joining the Grand Canyon staff, Lackey was a ranger at Carlsbad Caverns National Park from 1989 to 1996 where she performed a variety of interpretive duties, including: leading wild and mild cave tours, living history exhibitions, presenting evening bat flight programs, conducting nature walks, slide presentations and demonstrations. She also was a supervisor in interpretation and has illustrated several publications and exhibits. Lackey holds a B. A. in Management from the College of the Southwest, New Mexico.

The Chamizal National Memorial, 800 South San Marcial, El Paso, is part of the National Park system and commemorates the Chamizal Treaty of 1963, which resolved a century-old boundary dispute between Mexico and the United States. By nurturing both the performing and visual arts, Chamizal National Memorial celebrates the cultures and the possibilities of cooperation among countries sharing a common boundary.

HONORS

Bill Miller, a Grand Teton seasonal law enforcement investigator, was named the 1997 Wyoming Peace Officer of the Year. **Harry Myers**, superintendent at Fort Union, received the Jack D. Rittenhouse Memorial Stagecoach Award for lifetime achievement in research and writing about the history of the Santa Fe Trail. The award is the highest honor given by the Santa Fe Trail Association.

ON THE MOVE

Marti Leicester, superintendent of Fredericksburg and Spotsylvania, to Associate Regional Director for Operations, Pacific West Region; **Tracy Brown**, from Park Facility Management Division-WASO to Science Application International Corporation, Washington, D.C.; **Timothy (TJ) Donovan**, supervisory ranger at Boston NHP, to special agent, Naval Criminal Investigative Service, Everett, WA; **Mary (Jeff) Karraker**, superintendent at Capulin Volcano, to Denver as an environment protection specialist; **Dennis Vasques**, natural resources training manager at Albright, to superintendent at White Sands; **Ken Garvin**, chief ranger at Chattahoochee River, is joining the Southeast Region staff as fire management officer, succeeding **Steve Smith**, who retired; **Rick Black**, a park ranger at Kennesaw, has been named as the NPS representative Coordination Center located at Peachtree-Dekalb Airport in Atlanta; **Mary T. Jones**, fire program assistant in the Southeast Region, to administrative technician at Blue Ridge Parkway, Laurel Springs district; **Rick Frost**, deputy director for information and public affairs at Consumer Product Safety Commission, to public affairs officer for the Intermountain Region.

Memorial for Murrah Federal Workers

The visual focus will be 168 empty stone chairs facing a reflecting pool and an American elm tree that withstood the bomb's blast. The memorial will be built on the site where the Murrah Building once stood. The Oklahoma City National Memorial, which will be a unit of the National Park System, will recognize the profound changes brought to so many lives on the tragic morning of April 19, 1995, when the Murrah Federal Building was bombed. The initiative was authorized by S. 871, the Oklahoma City National Memorial Act of 1997, that President Clinton signed on Oct. 9. The law authorizes $5 million in federal money for building and maintaining the memorial. For additional information, contact **Carol Anthony**, (202) 208-4989.

Quiet Technology In the Canyon

Secretary Babbitt was joined by **S**enator **John McCain** (Arizona) and Grand Canyon Superintend **Robert Arnberger** at a ceremony unveiling a new contract for helicopter services in Grand Canyon National Park. The Boeing/McDonnell Douglas-900 (MD-900) Explorer helicopter will replace the Bell 206 LongRanger presently used at Grand Canyon National Park.

While the primary purpose for switching to this type of helicopter is noise reduction, other benefits include increased passenger and cargo payloads. The MD-900 is a twin-engine helicopter, which further increases safety margins during high density altitude and short-haul operations, and other complex air operations in some of the most rugged terrain in the world. The helicopter contract with Papillon Airways of Seattle, Washington, which was awarded on Oct. 10, is the largest ever negotiated by the National Park Service and is the first of its kind to incorporate "quiet technology" standards for aircraft. The five year contract took effect Dec. 15. For more information, contact **Maureen Oltrogge** at (520) 638-7779.

BAER Teams Join The Fire

Drawing of firefighter using a drip torch to ignite vegetation during a controlled burning was done by Antonia Hedrick, Bureau of Indian Affairs, National Interagency Fire Center.

The new Burned Area Emergency Rehabilitation (BAER) Program is placing teams of experts beside fire fighters to reduce the adverse effects of fire and fire suppression on human life and park resources. The teams include hydrologists, biologists, archeologists, and geographic information specialists who evaluate impacts on park property, soil, water, and critically threatened cultural and natural resources. Working through the Department's Incident Command System, BAER teams are called in early in a fire and at the start of fire suppression efforts. Teams remain on site for 10 to 14 days or longer if necessary.

Erv Gasser, an NPS team leader from Seattle, said team specialists assess the impacts from the use of fire retardants, hose lays, fire breaks, and fire camps. They also recommend a rehabilitation strategy. The specialists conduct tests on site to determine the fire's effects on soils and to develop Burn Intensity Maps for use by resource managers in research and restoration. Team archeologists analyze impacts to cultural resources and offer recommendations for reducing damage in future fires. They also develop plans for protecting newly exposed cultural sites and artifacts. Trails are examined for safety and to assure that all hazard trees are taken down and left to restore the ecosystem.

Within three days of a controlled fire, the team provides a Burned Area Rehabilitation Plan and Accomplishment Report to the park superintendent or agency administrator. BAER team efforts were invaluable in rehabilitation following recent fires at Point Reyes National Seashore (CA) and Mesa Verde National Park (CO).

Canon-NPS Scholarships Develop Environmental Scientists

Four college students are the first winners of the Canon National Parks Science Scholarships. The awards aim at encouraging doctoral students, using the national parks as their laboratories, to conduct innovative research on topics selected by the NPS. The student's research and findings will be applied directly to the contemporary and vital challenges facing the long-term preservation of the National Park System. These highly competitive academic awards will support a new generation of scientists working in the fields of conservation, environmental science, and park management.

The 1997 winners and their dissertation topics are: **Andrew Suarez**, University of California-San Diego (Biological Sciences)— *Measuring the impact of exotic species in natural systems*; **Tom Meixner**, University of Arizona (Physical Sciences)—*The sensitivity of alpine catchments to changes in climate and atmospheric deposition*; **Ilene Grossman-Bailey**, Temple University (Cultural Sciences)—Native American resource use in the New Jersey outer coastal plain; and **Dave Smyth**, Michigan State University (Social Sciences)—*Measuring the economic impact of National Parks*.

With the national parks as their laboratories, the students will complete their dissertation, prepare an article for park managers on the significance of their research, and present a public lecture about their work. The program is underwritten by Canon U.S.A., Inc. and works with the NPS, the National Park Foundation, and the American Association for the Advancement of Science. Each doctoral candidate will receive $25,000 per year for up to three years. Canon U.S.A. will double its efforts to a total of $2.5 million funding over the next five years to fund more scholarships (eight per year beginning in 1999), honorable mention awards, and an annual Science Scholars Symposium. Canon U.S.A. committed to establishing the program as part of its multi-million dollar Clean Earth Campaign.

AROUND THE PARKS

The Chesapeake and Ohio Canal National Historical Park is soliciting Requests for Proposal for the leasing and rehabilitation of houses that are in the Maryland area of the park and listed on the National Register of Historic Places. The properties include the West House in Seneca; the Myers property, located just off Harpers Ferry Road in Pleasantville; the Little House overlooking the canal on the east end of Hancock; and the Donegan/Anthony House in Pearre. After they are rehabilitated, the buildings can be leased for up to 99 years and used for residences, a bed and breakfast, or similar type of business. The program affords the NPS an opportunity to ensure that many historic properties listed in or eligible for the National Register are preserved. Contact: **Elaine Sevy**, (202) 208-6844.

The Washita Battlefield National Historic Site, Oklahoma, became a unit of the National Park System in a dedication ceremony at the Washita overlook on Nov. 1. The new park is the site of the attack by Lt. Colonel George Armstrong Custer on the sleeping village of Cheyenne Peace Chief Black Kettle on the bitterly cold morning of Nov. 12, 1868. The Washita site will contain 326 acres, the core of the battlefield, including the site of Black Kettle's village, Custer's command post, and troop and Indian positions discovered in a 1995 archaeological survey of the battlefield. The Service will develop interpretive trails and exhibits to key sites affiliated with the Washita action. **Rick Frost**, (303) 987-6732, is the contact.

Olympic National Park is the subject of *Olympic Odyssey*, an interactive, multimedia CD-ROM that is available free of charge to all kindergarten through sixth grade teachers and libraries on the Olympic Peninsula, Washington. An Educator's Activity Guide will accompany the CD, an innovative learning tool that was created by a seasonal employee. Free distribution of 1,100 copies of the CD and Guide was made possible by the Mount Rainier, North Cascades, and Olympic Fund, National Park Foundation, and the Northwest Interpretive Association. Contact: **Barb Mayne**s, (360) 452-4507.

The Cuyahoga Valley National Recreation Area's 1998 Towpath Tag depicts a mule pulling a canal barge on an electric blue background. The new tag, second in a series, was unveiled on the heels of a successful first year Towpath Tag donation campaign. The pin-on tag is given to those who make a $5 donation to help with the maintenance and operation of the 20-mile Ohio & Erie Canal Towpath Trail. Superintendent **John P. Debo, Jr.** is optimistic that this year's donations will exceed 1997 tag revenue of $45,000. The popular trail provides year-round access to the park's historic, natural, and scenic areas, drawing more than 1.6 million users annually. Maintaining and operating the trail costs about $300,000 a year. Towpath Tags are available at the trail's visitor centers, area merchants, and via mail. Contact **Dennis Hamm** at (800) 445-9667.

Colorado Plateau Parks: Status of Air Quality and Related Values in Class I National Parks and Monuments of the Colorado Plateau, a final report, summarizes emissions, ambient monitoring, and air quality-related ecological and visibility effects information for northern Arizona, southern Colorado, northern New Mexico, and southern Utah, with chapters dedicated to each of the 11 NPS Class I areas in the region. The parks include **Arches**, **Bandalier**, **Black Canyon of the Gunnison**, **Bryce**, **Canyonlands**, **Capitol Reef**, **Grand Canyon**, **Great Sand Dunes**, **Mesa Verde**, **Petrified Forest** and **Zion**. The report also provides recommendations for future air quality research and monitoring efforts that would better clarify current conditions and resource effects thresholds. For a copy of the report, contact **Tonnie Maniero** at (303) 969-2806.

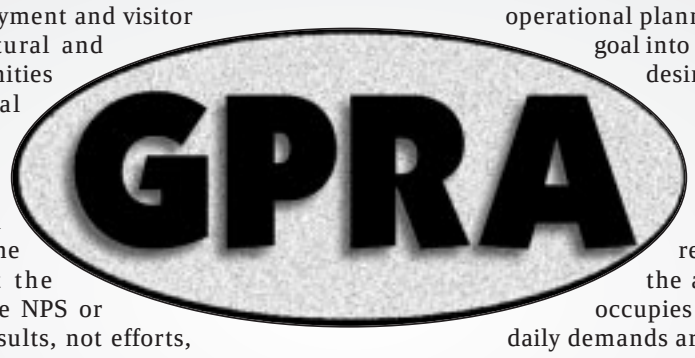
The NPS Beringia International Heritage Program sponsored a conference to discuss climate change, traditional use of resources, archaeological discoveries, and cultural events in the Beringia region of Northwest Alaska and Northeast Russia. Leading American and Russian researchers gathered in Anchorage November 5 and 6 to present newly gathered information on the topics. The annual event was co-sponsored this year by the Anchorage Museum of History and Art. The Beringia program recognizes the contemporary and historic exchange of biological resources and cultural heritage in the crossroads region of the Bering Strait, and works with local residents, Native organizations, universities, and other groups in the United States and Russia in the preservation and understanding of natural resources and protected lands. For information, contact John Quinley at (907) 257-2696.

The NPS Rivers, Trails and Conservation Assistance Washington Office has released a CD-ROM on the Nationwide Rivers Inventory, containing information about 3,600 free-flowing river segments that are believed to possess "outstandingly remarkable" natural or cultural values. The format is geographic information system (GIS) based. The inventory will be useful in preparing statewide river assessments, mapping stream related projects, conducting monitoring, and finding source populations of plant and animal species for restoration. RTCA staff worked with the U.S. Geological Survey and ten other federal agencies to make the inventory more available to the public. Copies are available. Contact **Rob Campellone** at (202) 565-1198.

THE EIGHT STEP PLAN FOR ACHIEVING STRATEGIC GOALS

The 1997 NPS Strategic Plan uses an Eight Step Performance Management Process to carry out the mandates of the Government Performance and Results Act (GPRA) from conceptual planning to implementation and evaluation. In the first step, the NPS mission and general goals are the starting point for developing individual park and program goals consistent with the servicewide plan.

The NPS mission is to preserve unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. The plan sets out four general servicewide goals: preserve park resources; provide for the public enjoyment and visitor experience at parks; strengthen and preserve natural and cultural resources and enhance recreational opportunities managed by partners; and ensure organizational effectiveness.



The performance management process requires in step two that the specific park or partnership program establish its purpose and significance and determine its particular mission. The third step sets out the servicewide mission goals—the ideal conditions the NPS or unit wants to attain or maintain. The focus is on results, not efforts, on conditions, not activities.

Examples of specific mission goals include: natural and cultural resources and associated values are protected, restored, and maintained in good condition and managed within their broader ecosystem and cultural context; visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities; natural and cultural resources are conserved through formal partnership programs; current management practices, systems, and technologies are used to accomplish the NPS mission.

The next phase, step four, determines the long-term, outcome-related performance goals and associated performance measures. These are the outcomes to be achieved over the next five years, but with a range of three to 20 years depending on the specific goal. Examples of specific, quantifiable goals include: achieve a visitor satisfaction level of 80 percent by 2002, measured by visitor surveys; and replace or upgrade 35 percent of employee housing units classified as in poor or fair condition in 1997.

Under step five, an assessment of resources—funding, staffing, the physical condition of the park unit—and analysis of realistic capabilities provides a way to develop reasonable goals and to schedule the products and services needed to achieve the goals. A consistent level of funding is assumed for the duration of the plan. Step six develops an annual performance plan, annual goals, and an annual work plan to provide a bridge between conceptual, strategic planning, and operational planning and actions. This step breaks out each long-term goal into annual goals that, taken together, will accomplish the desired results.

The decisions make in the previous steps are put into practice in step seven so that the work accomplished supports the goals. Parks and programs receive budget allocations and update their annual goals to reflect actual funding and staffing, and they implement the annual performance plan during the year. This step occupies the largest portion of most employees' time. When daily demands are the most pressing, having the "big picture' of steps 1-6 keeps people focused on achieving the goals.

The final step answers the question: Did we accomplish what we intended? It evaluates management performance and provides feedback to develop the annual performance reports that GPRA requires. The report has two parts: the progress made toward meeting last fiscal year's annual performance plan, and an analysis of the present fiscal year's annual performance plan, identifying continuing goals. The reasons why some of last year's goals were not accomplished are explained. The reports, which can also be used as a basis of personnel appraisals, should be synchronized with the budget. At this point, the process continues by returning to step four and beginning planning for the next fiscal year.

The NPS Strategic Plan, which builds on the *1991 National Parks for the 21st Century: The Vail Agenda* and the *1994 National Park Service Strategic Plan/Vision Document*, is available on the Internet at **http://www.nps.gov/htdocs2/planning/sp/index.htm**

KILAUEA'S 15TH ANNIVERSARY MARKED, PAGE 3

Jamie Rappaport Clark, Director
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Court Ruling Jeopardizes Gray Wolf Reintroduction Program

Ed Bangs, Joe Fontaine, and Sharon Rose

U.S. District Court Judge William Downes ruled that the reintroduction of wolves Yellowstone National Park and central Idaho was illegal under the Endangered Species Act and ordered the removal of all reintroduced wolves and their offspring.

Wolf. The very word evokes strong emotional reactions. And the reintroduction of gray wolves from Canada to Yellowstone National Park and central Idaho has been a lightning rod for those emotions. In January 1995, after years of research, planning, and public discussion to work out logistics and management strategies that would best address everyone's needs and concerns, 29 gray wolves from Canada were brought to the United States, 15 bound for acclimation pens in Yellowstone National Park and 14 bound for immediate release in central Idaho's Frank Church River of No Return Wilderness Area. The Yellowstone acclimation pens were opened in March 1995 to allow the animals to roam freely.

In 1996, the process was repeated, bringing the total number of translocated wolves up to 66. The animals responded so well and established packs so quickly that the relocation program was deemed successful ahead of schedule and considerably under budget. As of late 1997, the original numbers had increased from 66 to about 160.

Livestock depredations, understandably feared by ranchers in the area, have been below earlier estimations. Those that have been proven to be wolf-caused have been dealt with quickly, with the offending wolves removed or destroyed and the ranchers financially compensated from a special private fund for that purpose. The reintroduced wolves are designated a non-essential, experimental population to allow more flexibility in managing them than would be available if they were designated an endangered species.

Then, on Dec. 12, the U.S. District Court for Wyoming ruled that the Fish and Wildlife Service's final rule establishing a nonessential experimental population of gray wolves in the greater Yellowstone area and central Idaho was unlawful and ordered the Service to remove all the reintroduced wolves and their offspring from the Yellowstone and central Idaho areas. However, the Court deferred the effect of its order pending the outcome of any appeal.

The Service is working with the departments of the Interior and Justice to explore the full range of legal options available and their ramifications. The U.S. Government must respond within 60 days of the ruling. "This landmark program may now be in jeopardy—that's a real shame," **Secretary Babbitt** said. "I will fight with everything I have to keep the wolves in Yellowstone where they belong. The reintroduction program has been a significant step forward in restoring the wonderful wild diversity of this country." During the appeal process, the Fish and Wildlife Service will continue to manage the wolves according to the reintroduction plan approved in 1994. The laws and regulations regarding reintroduced gray wolves are unchanged and will remain in place. Simply put: Any landowner and/or livestock producer who thinks he has problems involving wolves should call his local representative from the Fish and Wildlife Service or USDA Wildlife Services (formerly Animal Damage Control). A Wildlife Services agent will investigate the problem and advise the parties as to necessary actions.

Landowners can, in an opportunistic, noninjurious manner, harass adult wolves on private land at any time. These actions must be reported to a representative of the Fish and Wildlife Service or USDA Wildlife Services within seven days. Public land grazing permittees can, in an opportunistic, noninjurious manner, harass adult wolves near their livestock at any time. These actions also must be reported to a representative of the Fish and Wildlife Service or USDA Wildlife Services within seven days.

After six or more breeding pairs of wolves are established in a recovery area and after designated authorities have confirmed livestock losses to have been caused by wolves and have been unable to stop further losses, individuals holding grazing permits on public lands can get a permit to take wolves in the act of killing or wounding livestock (cattle, sheep, horses, and mules). There are no land use restrictions on private land and after six or more breeding pairs become established in a recovery area, there would no longer be land use restrictions on public lands even near active den sites, except in national parks and national wildlife refuges.

Wolves that attack other domestic animals and pets on private land twice in a calendar year would be moved. Compensation for livestock confirmed to have been killed by wolves will be paid from an established private fund. Wolves in the act of wounding or killing livestock on private land can be killed by livestock owners-managers (maximum 24-hour reporting and evidence of livestock freshly wounded by wolves must be evident). Wolves that are negatively impacting big game populations can be moved by resource agencies.

CONSERVATION AWARD

Sam O. Drake, Jr., Manager, Savannah Coastal Refuges

Coy Johnson, of Ducks Unlimited/Wetlands America Trust, is the recipient of the 1996-97 Regional Wetlands Conservation Award. Deputy Southeast Regional Director **Dale Hall** presented the award in recognition of Johnson's role in developing the Low Country Initiative that is protecting more than 1.5 million acres of coastal South Carolina wetlands through conservation easements. Wetlands America Trust has helped 28 private landowners conserve 50,000 acres through perpetual easements.

Johnson developed the program and helped persuade plantation owners to establish the conservation on their property. The easements protect a lifestyle as well as wetland and upland wildlife habitat. Instead of hosting the golf courses, high-density residential areas, and industrial development that have been invading the South Carolina coastal plain, these lands will make it possible to continue the Southern tradition of hunting and fishing.

South Carolina's Low Country

Above, FWS Deputy Southeast Regional Director H. Dale Hall is flanked by Coy and Joanne Johnson at the awards ceremony, which was held during the fall meeting of the Savannah Basin Focus Area Task Force at Davant Plantation House, at left, near Ridgeland, South Carolina. The house is owned by B.H. Rutledge Moore, chairman of the Savanna Basin Focus Area, and his wife Frieda Barrow Moore.

Waccamaw Joins National Wildlife Refuge System

Diana Hawkins

The Fish and Wildlife Service has acquired 134 acres of South Carolina's historic rice fields from Coastal Educational Foundation, Inc., to establish the new Waccamaw National Wildlife Refuge. According to Southeast Regional Director **Sam Hamilton**, this initial acquisition of a tidal rice field provides valuable habitat for waterfowl, fisheries, and other wildlife as well as a diversity of plant life. The refuge will eventually encompass about 49,800 acres along the Great Pee Dee and Waccamaw rivers in Georgetown, Horry, and Marion counties. On June 25, 1997, the Service formally approved establishment of the refuge to provide diverse habitat for endangered and threatened species, freshwater and anadromous fish, migratory birds, and forest wildlife, including a wide array of plants, within this important coastal river ecosystem.

Organizations that collaborated with the Service to make this acquisition possible included the Historic Rice Fields Association, a nonprofit organization working to protect historically significant rice fields and plantations of the South Carolina Low Country, and the South Carolina Department of Health and Environmental Control Office, Office of Coastal Zone Management, which provided mitigation funds for the acquisition of these rice fields. Association Vice President **Joe Carter** was instrumental in negotiating the mitigation package for this transaction. Through the efforts of Senator **Ernest "Fritz" Hollings**, Congress earmarked $2 million from the Land and Water Conservation Fund to purchase the lands.

Maine Takes Lead in Protecting Salmon; ESA Proposal Withdrawn

Scott Smullen (NMFS), Diana Weaver (FWS), and Dennis Bailey (State of Maine)

The Fish and Wildlife Service and the Department of Commerce's National Marine Fisheries Service have withdrawn a proposal to protect Atlantic salmon in seven Maine rivers under the Endangered Species Act. Instead, the fish will be protected by a cooperative recovery effort spearheaded by the State of Maine.

Officials emphasized that the recovery of Atlantic salmon stocks depends on full implementation and monitoring of Maine's newly developed Atlantic Salmon Conservation Plan. The state plan was accepted by NMFS and FWS, the federal agencies responsible for recovering threatened and endangered marine and freshwater fish.

"We are unlocking the full potential of rivers in Maine and opening a new chapter in conservation history," said Secretary Babbitt. "**Governor Angus King** showed great leadership in forging this collaboration, which will enhance the ecology and economy of the state for years to come. These seven rivers will continue to attract more anglers, boaters, and other sportsmen and -women who will help create and sustain new jobs and revenue as the rivers continue to stand as a model for the nation."

The rivers are the Dennys, Machias, Narraguagus, Pleasant, Ducktrap, and Sheepscot. Both federal agencies will continue to gather scientific information on salmon populations in other New England rivers, including Maine's Tunk Stream and the Kennebec and Penobscot rivers. The decision to withdraw the proposal for Endangered Species Act protection for Atlantic salmon was published in the Dec. 18 *Federal Register*.

FWS and NMFS are involved in the recovery because Atlantic salmon spend their early life in fresh water, mature at sea, and then return to spawn in the river where they were hatched. Photo by William W. Hartley

The cooperative recovery effort includes state, federal, and private programs and is only the second of its kind in the nation approved for a fish species. It involves continuing broodstock development and stocking of Atlantic salmon in rivers, improvement of upland habitat, construction of fish weirs, changes in aquaculture and agriculture operations to reduce threats to salmon survival, and continued monitoring and research programs to improve progress. The centerpiece of the protection effort is the state-designed plan that addresses the potential impacts of aquaculture, forestry, recreational fishing, and a wide range of agricultural activities. A task force of scientists, academics, state employees, Native American subsistence anglers, conservationists, anglers, and private citizens, all appointed by Maine Governor **Angus King**, worked with federal fisheries experts for two years to develop the plan.

"This plan is an innovative effort to resolve the real-world conflicts that occur when preserving a species clearly means rethinking traditional uses of a river," said **Terry Garcia**, assistant secretary of Commerce for Oceans and Atmosphere and NOAA deputy administrator. "Our decision to protect salmon through this plan rather than through listing under the ESA highlights the act's flexibility and our willingness to consider state-designed plans." NMFS and FWS will conduct yearly reviews to determine whether further ESA protection for the salmon is needed.

Visiting the Salton Sea

Interior Secretary Bruce Babbitt, left, toured southern California's Salton Sea on Dec. 18, accompanied by Salton Sea National Wildlife Refuge Manager Clark Bloom, right. Refuge biologist Ken Sturm, behind the Secretary, piloted the airboat as they showed Babbitt where thousands of birds, including 1,363 endangered brown pelicans, died of avian botulism in 1996 and 1997. Salton Sea was once a popular recreation area and still is a favorite stopping point for birds migrating in the Pacific Flyway. But millions of fish are dying from bacterial and parasite infections, while avian botulism has

"I'm here because this Administration is serious about the Salton Sea and environmental issues are a priority," said Secretary Babbitt during a Dec. 19 news conference on the shore of California's largest lake. Babbitt said federal and state agencies would immediately begin a 2-year evaluation of environmental impacts of a variety of proposed solutions using $10 million in federal, state, and local money. Suggested solutions have included diking off part of the sea, decreasing agricultural drainage into the sea, or pumping fresh water into it and salt water out. However, the Secretary didn't commit to any one proposal. "Every time I go out on the lake, I see a different possibility," he said.

Congressmen Duncan Hunter, left, and George Brown, right, members of Congress' Salton Sea Task Force, accompanied Secretary Babbitt, center, on his Dec. 18-19 tour of Salton. "I think the Secretary is committed to helping us and that's the important thing," Hunter said. Photos and text by Susan Saul, Public Affairs Specialist, U.S. Fish and Wildlife Service, Portland, Oregon

Service Committed to GPRA Goals

The Fish and Wildlife Service's mission is: "Working with others to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people." Although fish and wildlife in America represent tremendous environmental, recreational, and economic assets, these resources are increasingly threatened making the Service's mission more complex and critical.

In developing goals and strategies to fulfill requirements of the Government Performance and Results Act while remaining true to its mission, the Service consulted its various publics in two ways: a structured priority questionnaire was sent to approximately 700 external stakeholder representatives and 300 employees; and two half-day meetings were held in each of the Service's seven regions, one for external stakeholders and the other for employees.

Following this consultation process, the Service proposed four principal mission goals and 20 strategic goals and measurements to improve the condition of America's fish and wildlife and the public's enjoyment of these resources. Although the Service is proposing these goals for itself, it realizes that the conservation of America's fish and wildlife resources is unattainable without the participation and dedication of others.

These goals and targets for performance will specifically measure the results of all the essential work carried out by the Fish and Wildlife Service during the next five years.

The four mission goals encompass Service programs and activities in these areas: *Sustainability of Fish and Wildlife Populations:* Migratory birds; endangered fish, wildlife, and plant species; interjurisdictional fish; and marine mammals are conserved, protected, enhanced, or restored. The Service is participating in conservation of other species when its expertise, facilities, or lands can enhance state, Tribal, or local efforts. *Habitat Conservation—A Network of Lands and Waters:* An ecologically diverse network of lands and waters of various ownership is conserved in cooperation with others to provide habitats for marine mammals and migratory, interjurisdictional, threatened, endangered, and other species associated with those ecosystems conserved. *Americans and Wildlife:* Americans have the opportunity to understand and participate in the conservation and use of fish and wildlife resources. *Workforce Excellence:* The Service's workforce, scientific capability, and business practices, in cooperation with the Department's scientific expertise, support the achievement of the bureau's mission.

The strategic performance goals create a structure to involve more people and partnerships in shaping natural resource management. This dialogue can begin with the development of joint performance goals and measures with other federal agencies concerned with natural resource management issues.No single government agency or collection of unconnected agencies is sufficient nor can take the place of the commitment of individuals, communities, and institutions to protect natural resources and ecological integrity.

Apologies to **Diana Weaver** (ESA Protects Bog Turtles); Susan Saul (Salton Sea Staff Honored); and **Dan Sobieck**, **Steve Lewis**, and **Eric Nelson** (Upper Mississippi Refuges are Globally Important to Migratory Birds). Their names were inadvertently left off of their articles in the December-January issue of People, Land and Water.

U.S. Bureau of Indian Affairs

Kevin Gover, Assistant Secretary
Ralph Gonzales, Bureau Editor

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Gillis Named Employee of the Year

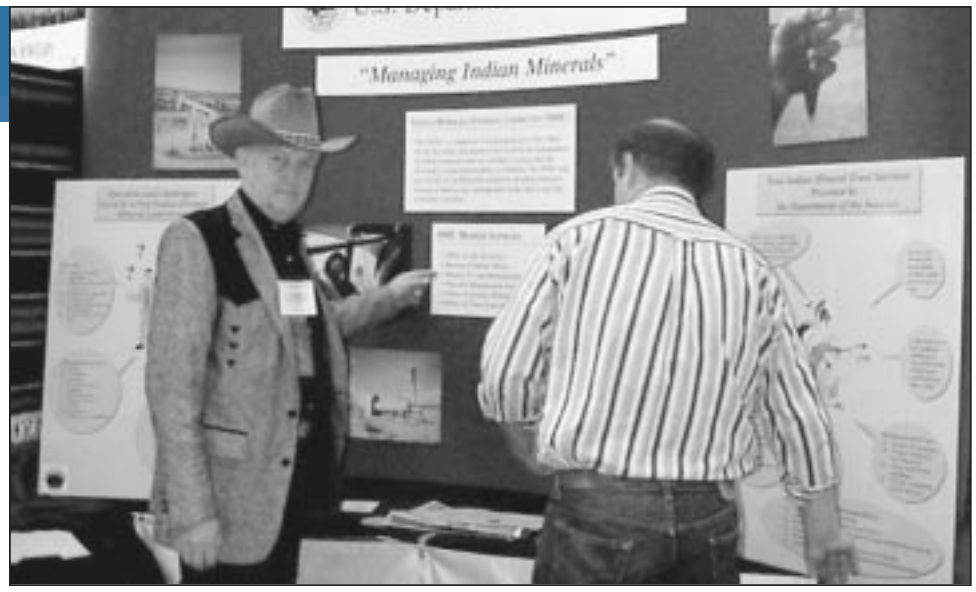
Jolene Gillis, who provides clerical support to the Facilities Management staff of the BIA's Aberdeen Area Office in South Dakota, overcame a problem that faces thousands of Interior employees these days.

"Due to recent downsizing and cut backs in staffing levels, Jolene has taken on the work load of several positions," said **Cora Jones**, the area director. "She has accomplished an oversized workload in a superior manner, often ahead of schedule, and always keeping a positive attitude. Jolene has performed beyond what is expected."

Nominated by six employees on the Facilities Management staff, Jolene was named Employee of the Year for the Area Office. The honor carries a $1,000 cash award and Jolene's name will be added to a plaque that is displayed in the area director's office.

Other nominations for the award were: **Peggy Geffre**, a secretary in the Branch of Natural Resources; **Frank Lawrence**, a legal instruments examiner, Land Titles and Records office; **Ernest Pourier**, an accounting technician, Branch of Accounting Management; **Ted Sanchez**, a computer systems analyst, Branch of Management Research and Evaluation; **Betsy Sandoval**, a secretary, Branch of Real Property Management; and **Norma Vermillion**, a microform equipment operator, Land Titles and Records office.

The award is presented annually to Area Office employees who show a willingness to serve above and beyond normal duty requirements; demonstrate loyalty to the organization; actively participate in community affairs; make contributions that reflect positively on the organization; are courteous and respectful to coworkers, tribal staff, and the general public; and demonstrate self-development and self-improvement for themselves and the organization. Nominations are from supervisors or another employee who feels an employee has met the qualifications identified above.



Lynn Engdahl, left, representing the Bureau of Land Management's Native American Office and the Indian Minerals Steering Committee (IMSC), and Ken Young, representing the Bureau of Indian Affairs and the IMSC's Indian Communication and Outreach Team, helped staff the Interior exhibit at the National Congress of American Indians in Santa Fe, New Mexico in November. Photo by Floyd Gonzales

American Indian Congress Booth Helps Locate Trust Account Holders

MMS Royalty Management Program, Denver Staff

The Department was well-represented at the 54th annual conference of the National Congress of American Indians in Santa Fe, New Mexico, where a joint initiative helped locate hundreds of trust account holders. Among those who addressed conferees were **Secretary Babbitt**, **Kevin Gover**, the assistant secretary for Indian Affairs, **Hilda Manuel**, the deputy commissioner of Indian Affairs, and **Tom Thompson**, the deputy special trustee for Operations, Office of the Special Trustee for American Indians.

Interior sponsored an information booth, *Managing Indian Minerals*, which emphasized its trust responsibilities and depicted the coordination of service between the Bureau of Indian Affairs, the Bureau of Land Management, the Minerals Management Service, and the Office of the Special Trustee for American Indians.

Attended by more than 1,800 American Indians from 200 tribes, the session served as a forum for Interior to tell the Indian community about the Indian Trust Services it provides. Management of Indian Trust Funds proved to be of high interest at the Interior booth. Of the more than 345,000 Individual Indian Monies Accounts nearly 48,000 have recipient account holders who have not yet been located.

Conference attendees, who examined the list, are helping to provide addresses for nearly 100 account holders. One attendee identified nearly 30 relatives who were on the list. The National Congress of American Indians, founded in 1944, is the oldest and largest American Indian advocacy organization in the United States.

GPRA Opportunity, Challenge, and lots of Work

The Government Performance and Results Act, which aims to show the American taxpayers how their tax dollars are being used, provides the BIA with a unique mandate to realistically assess its mission in relation to its budget over the next several years. Based on sound and realistic goals, the plan will assist the bureau to identify activities that are most important, provide a structure for its decision-making and accountability, and link its budgetary and human resources to its goals.

It will help the BIA make better use of public funds and provide the best possible service to tribal governments. The most important component—**Objectives, Goals, Strategies, Measures, and Evaluation**—sets out the strategies, specific measures of achievement, and evaluation methodology for each performance goal. The annual performance plans and reports, and the annual budget requests to OMB and the Congress are linked to and complement the plan.

The BIA's mission is to fulfill its trust responsibilities and promote self-determination on behalf of Tribal Governments, American Indians, and Alaska Natives. The BIA provides services directly, or through Self-Determination contract, grant and compacts with tribes, to more than 1.2 million American Indians and Alaska Natives in 31 states. More importantly, BIA's programs are funded and operated in a highly decentralized manner with more than 90 percent of all appropriations expended at the local level with an increasing amount operated by tribes and tribal organizations under contracts or self-governance compacts.

The BIA's implementation of the Self-Determination Act has allowed the tribes to exert increased control over their own development goals and programs. Helping tribes improve the quality of life for their members will require substantial investments in, and prudent management of, tribal government infrastructure, community infrastructure, education, job training/employment opportunities, and other components of long term, sustainable development.

BIA's performance goals cover a full range of government services from education, social services, and law enforcement, to agriculture and range lands development, water resources, fish, wildlife, as well as road-building and housing. A sampling of these goals provides an idea of the wide scope of BIA responsibilities—and the work cut out for the agency over the next five years:

Self-Determination: The BIA will increase the level of tribal contracting or compacting by three percent annually by reducing the barriers and impediments to contracting. By 2003, the BIA will identify, set benchmarks, and improve the timeliness and quality of its support services to tribal governments, including technical assistance on tribal membership criteria, enrollment and judgment rolls, certification of degrees of Indian blood, review and approval of tribal governing documents, development of claims distribution plans, and certification of tribal rolls for the use and distribution of judgment funds and dividends. **Human Services:** Through an aggressive information and data collection process, BIA will identify Indians residing on or near reservations who need financial assistance for food, clothing, and shelter but who do not qualify for state aid. The BIA will quickly refer these individuals to established Welfare to Work programs and develop a grant assistance program that is supported and replicated by tribes.

Law Enforcement: Increase the number of qualified-certifiable law enforcement personnel in accordance with minimum training standards and increase by 10 percentthe clearance rate of criminal investigations that identify offenders. **Community Development:** Improve human capital in Indian communities by increasing the number and quality of long-term job placements; help American Indian tribes, tribal organizations, and individuals to set up or expand self-sustaining businesses in tribal communities; protect the public investment in transportation systems by prolonging the life of roads constructed with Highway Trust Funds. **Natural Resources:** Encourage tribes and individual Indians to protect and preserve their natural resources by managing their use in accordance with Integrated Resource Management Plans. Support tribal co-management of shared, multi-jurisdictional resources located off-reservations which provide for the exercise of treaty hunting, fishing and gathering rights. **Education Goals:** By 2002, BIA-funded schools will decrease the student dropout rate and increase student attendance, student academic performance, native language program availability and accreditation rates. Student enrollment will increase by 10 percent and graduation rates by three percent in Tribal Controlled Community Colleges.

Trust Services: Assist tribes to establish and define tribal water rights and to settle Indian land claims through negotiation. Complete a 100 percent environmental audit on all 54,000,000 acres of trust lands; maximize the economic benefit and utilization of individually-owned Indian, restricted and tribal lands in a manner consistent with the federal trust responsibility to protect and preserved such lands.

From Paternalism to Self-Determination

Gary S. Morishima

Forests have been central to North American tribal cultures and economies for millennia, forming the economic backbone of many reservation communities, providing food, medicine, and raw materials as well as sanctuaries for worship, contemplation, and inspiration. Today's these forests offer Indian communities a rich sustainable commercial resource for rebuilding tribal self-reliance.

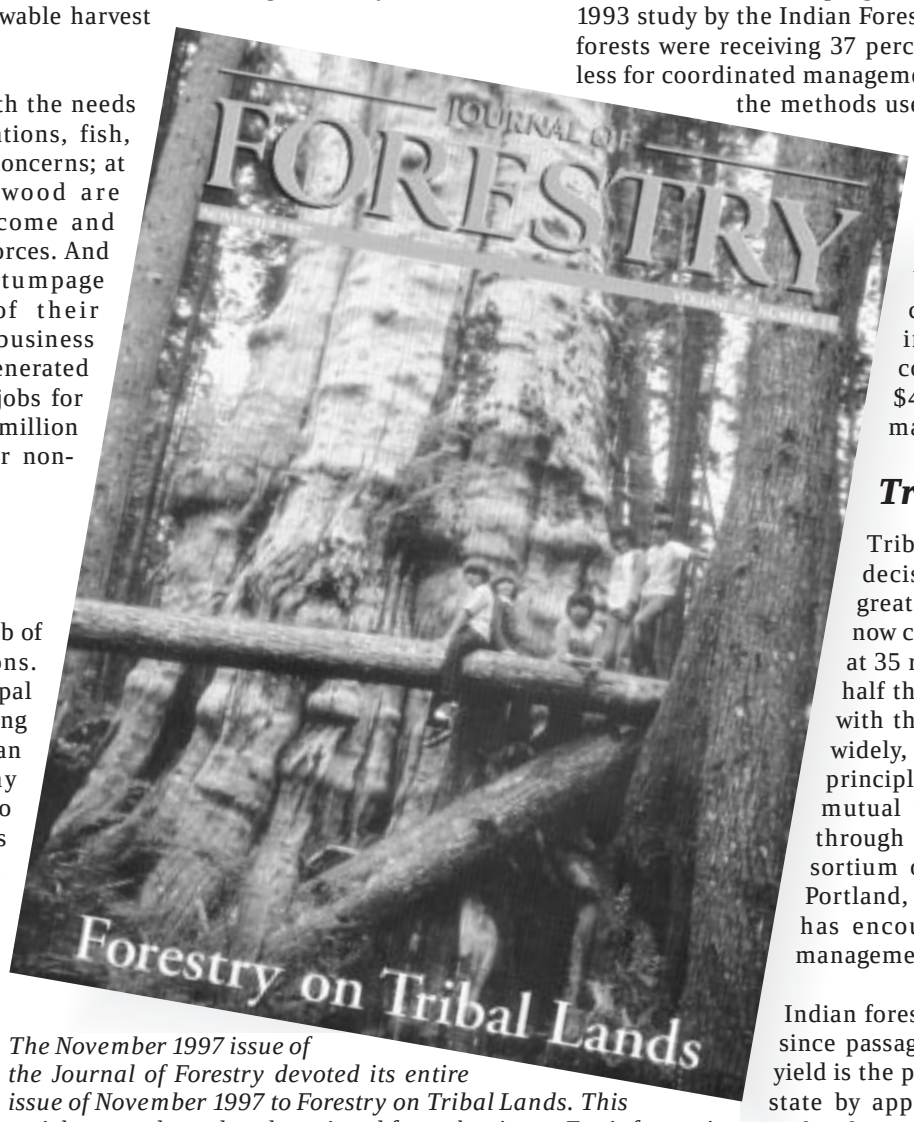
In the continental United States, Indian forests range from the rainforests of Washington to the palms of Florida, from the pine and hardwoods of the Midwest and Northeast to the piñon-juniper of the Southwest. On 193 Indian reservations in 33 states there are 16.8 million acres of forestland and 9.3 million acres of woodlands (forested land with less than five percent crown cover of commercial timber species). The 5.7 million acres of Indian forests managed for timber production hold a standing inventory of 44 billion board feet and support an annual allowable harvest of 850 million board feet.

Forest management objectives vary with the needs of tribal communities. At some locations, fish, wildlife, and recreation are principal concerns; at others, food, medicine, and firewood are paramount; and at still others, income and employment are the primary driving forces. And many tribal governments rely on stumpage income to address the needs of their communities and provide jobs and business opportunities. In 1991 Indian forests generated more than $465 million and 40,000 jobs for Indian communities. More than $180 million and 9,000 jobs were created for their non-Indian neighbors.

Fragmentation and Fairness

Indian forests are managed within a web of court decisions, laws, and regulations. Since 1909 the BIA has been the principal federal agency responsible for managing Indian forests under the National Indian Forest Resources Act. On many reservations, Indian forests are also managed in accordance with tribal laws that regulate forest practices, fish and wildlife management, zoning, environmental protection, and business development.

Since passage of the 1975 Indian Self-Determination Act (PL 93-638), tribes have become more involved in setting and implementing forest management direction. But complex land ownership patterns of trust, fee, and undivided property interests present formidable challenges. An administrative nightmare was created when communally owned tribal forests were distributed to individual Indians as small allotments (up to 160 acres) under the 1887 Dawns Act. Allotment destroyed logical management units, interfered with orderly development, reduced the value of Indian assets, and increased the risk of loss to fire, insects, and disease. Problems of administration were greatly multiplied, costs escalated, and comprehensive management made far more difficult. The situation worsens with each generation as ownership is increasingly fragmented by the inheritance of property as undivided interests.



The November 1997 issue of the Journal of Forestry devoted its entire issue of November 1997 to Forestry on Tribal Lands. This article was adapted and reprinted from that issue. For information about the issue contact the Journal at (301) 897-8720.

The vast majority of Indian forests are held in trust by the United States for the benefit of their Indian owners (forestland held by Alaska Native Corporations have a different legal status under the Alaska Native Claims Settlement Act of 1971). Although Indian lands are legally distinct from private and public lands, the differences are often overlooked in legislative and administrative processes. When federal agencies fail to recognize the unique status of Indian lands, tribal sovereignty can be undermined.

For example, federal administration of the Endangered Species Act has reduced the flexibility, options, and opportunities for tribal governments to use their resources in accordance with their own needs and priorities. Since many Indian forests have not been harvested as intensively as nearby federal, state, and private lands, they are being relied on as wildlife sanctuaries to alleviate restrictions on other lands. Serious issues of fundamental fairness arise when the conservation burden is shifted onto Indian tribes to compensate for problems caused by non-Indian development. On June 5, 1997, Interior Secretary Bruce Babbitt and Commerce Secretary William Daly issued a joint order on American Indian tribal rights, federal-tribal trust responsibilities, and the ESA to provide guidance to harmonize federal trust responsibilities, reserved rights, and administrative responsibilities to minimize the potential for conflict and confrontation.

Trust Responsibility

Until the mid-1970s the trust responsibility was manifest as paternalism. Tribal desires for self-determination were suppressed, at least in part, because of concerns for liability that might result if Indians were allowed to make "unwise" decisions. The federal government exercised broad, pervasive authority as trustee to manage Indian forests in accordance with its own views of Indians' best interests. Unhappily, tribal values were often ignored or sacrificed when the mission of the Department of the Interior to serve the general public conflicted with its duties as trustee for Indians. For example, the White Mountain Apache Tribe repeatedly complained that its forest was being manipulated to increase water runoff to support the development of Phoenix; ultimately, the tribe was unable to recover damages from the BIA because the actions in question occurred after the 1946 jurisdictional cutoff date established by the Indian Claims Commission Act.

As a practical reality, the ability of federal agencies to fulfill their trust responsibilities is constrained by the fiscal resources authorized by Congress. Until World War I, the BIA forestry program never operated with more than 180 staffers or an annual appropriation exceeding $225,000. In 1996 about 1,100 staff positions (567 within the BIA and 529 in tribal programs) and $80 million were dedicated to Indian forestry. A 1993 study by the Indian Forest Management Assessment Team concluded that Indian forests were receiving 37 percent less funding for timber production and 65 percent less for coordinated management, per acre, than the USDA Forest Service, even though the methods used and the objectives sought were basically the same.

Underfunding has led to inadequate staffing, deficiencies in management planning, and decreased forest productivity. Indian tribes will continue to suffer substantial losses in income and employment should the United States fail to employ all the skill, diligence, and care at its command. Fearing the dire consequences of inadequate investment in their forests, Indian tribes contributed $35 million in 1996 alone to supplement the $45 million appropriated by Congress for Indian forest management.

Tribal Forestry Programs

Tribal forestry programs have been established to make decisions based on advice independent of the BIA, gain greater control, and correct management deficiencies. Tribes now carry out all the functions formerly performed by the BIA at 35 reservations and operate forestry programs at more than half the 97 major timbered reservations. Although experience with the transition from BIA to tribal management has varied widely, working relationships are now generally founded on principles of open communication, willing accommodation, and mutual respect. This growing partnership has been nurtured through the efforts of the Intertribal Timber Council, a consortium of 73 tribes and Alaska Native organizations based in Portland, Oregon. Since its founding in the mid-1970s, the council has encouraged business development, integrated resource management, and education in natural resource professions.

Indian forests have been managed under sustained-yield principles since passage of the Indian Reorganization Act of 1934. Sustained yield is the preservation of Indian forests in a perpetually productive state by applying sound silvicultural and economic principles to timber harvests. In practice, sustained yield must be integrated with other trust obligations, such as protection from damage by wildfire, insects, or disease, and providing opportunities for employment and profit. For 70 years the BIA managed Indian forests primarily for commercial timber production. But in the 1970s, tribal management shifted the emphasis to values rooted in sustained utilization, interrelationships, and balance—to ecosystem management.

Although this concept has recently become fashionable, Indian tribes had been practicing it for thousands of years before they were displaced from their territories. Tribal traditions and practices are now being revitalized on Indian reservation forests, and modern technology is being used to develop coordinated multiple resource management plans. The results on timber production and harvest levels are still unfolding. On some reservations, tribal approaches to forestry have impressed many. The Yakama Nation, for example, has demonstrated that habitat for old-growth-dependent species like the northern spotted owl can be maintained while still producing substantial quantities of timber. In 1996, Vice President Gore presented the Presidential Award for Sustainable Development to the Menominee Tribe for its outstanding forest management.

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Tribal philosophies of resource management are grounded in the traditions and practices that reflect a fundamental respect for all the resources that share the earth. Tribes must utilize, preserve, and protect the vitality of their resources knowing that generations of children yet unborn will bear the environmental and economic consequences: they must either provide for the spiritual, cultural, aesthetic, and economic needs of their communities, or face governmental and economic crises.

Only a small fraction of the potential of Indian forest has been tapped. Opportunities abound to further the social and economic welfare of Indian people through investment in forest transportation systems, stocking control measures, computer technology, more efficient use of harvested timber, intensive woodlands development, and improved management of fish, wildlife, and recreational resources. Cooperative marketing could increase the demand for forest products and services provided by tribal businesses that use timber, brush, mushrooms, nuts, berries, and wildlife. The horizon seems endless, but visibility remains unclear because of the changing climate of federal-tribal relations. A productive future for Indian forestry will be realized only if Indian tribes, the administration, and the Congress work together in true partnership.

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Managing El Niño's Waters

Dave Matthews and Carrie Kemper, Bureau of Reclamation

From California to Washington State and from Texas to Montana, the Bureau of Reclamation's water resources managers are preparing plans, staffs, and facilities to handle extremely high runoff and reservoir levels this year because of El Niño. The 1997-98 phenomenon—the source of dramatic changes in weather conditions that have caused floods and droughts world wide—is among the strongest ever recorded.

Of greatest concern to Reclamation is the potential for extremely heavy precipitation in the southern areas and extremely warm and dry weather in the northern areas and the impact those conditions will have on water management activities and facilities. Long range forecasts, however, are neither precise nor certain, and do not allow for targeting the exact watersheds and locations that may be affected by storms related to El Niño.

"Interior has put plans in place to be fully prepared—to the extent possible—for El Niño," says Reclamation **Commissioner Eluid Martinez**. "For instance, the Bureau of Reclamation and the U.S. Geological Survey are working closely with the National Weather Service, the National Oceanic and Atmospheric Administration, and nine other agencies to ensure we have up-to-the-minute information on pending weather conditions."

Reclamation, the largest wholesale supplier of water in the United States, has the nation's sixth largest electric power generator capacity, and manages multipurpose water facilities that include 355 storage reservoirs, about 70,000 miles of canals and other water conveyance and distribution facilities, and 52 hydroelectric powerplants. For the safety of its projects and the people who live near them, Reclamation takes the potential changes in water supplies created by the 1997-98 El Niño very seriously.

Reclamation's water managers normally prepare for winter and spring runoff through close coordination with River Forecast Centers, the U.S. Army Corps of Engineers, the USGS, and state and local water management agencies. The bureau also tracks long-range forecasts with the support of its Technical Service Center in Denver, Colorado. Measures have been stepped up this year. For example, agency meteorologists such as **Verne Leverson**, **Richard Stodt**, and **Curt Hartzell** have been working to help meet the challenge to water managers by monitoring and coordinating forecast information from the NOAA's National Centers for Environmental Prediction and the National Weather Service's River Forecast Centers and Climate Prediction Center. This coordination focuses on the critical information water managers need to make decisions regarding western river basin management.

Reclamation's Director of Research **Stan Ponce** heartily supports these efforts to integrate emerging forecasting technologies with water managers' operational decisions. "Interdisciplinary scientific partnerships are the key to our successful management of complex river systems," Ponce said at a recent research coordination meeting. Reclamation already has held numerous meetings with ten federal agencies and many universities, national laboratories, state and local agencies, and water districts to inform and educate water operations staff regarding the forecasting procedures and level of confidence in these forecasts. Education and notification are important to avoid misconceptions and to keep water managers in a state of readiness. Reclamation is ensuring its customers also have the information they need—the quicker, the better.

Commissioner Eluid Martinez

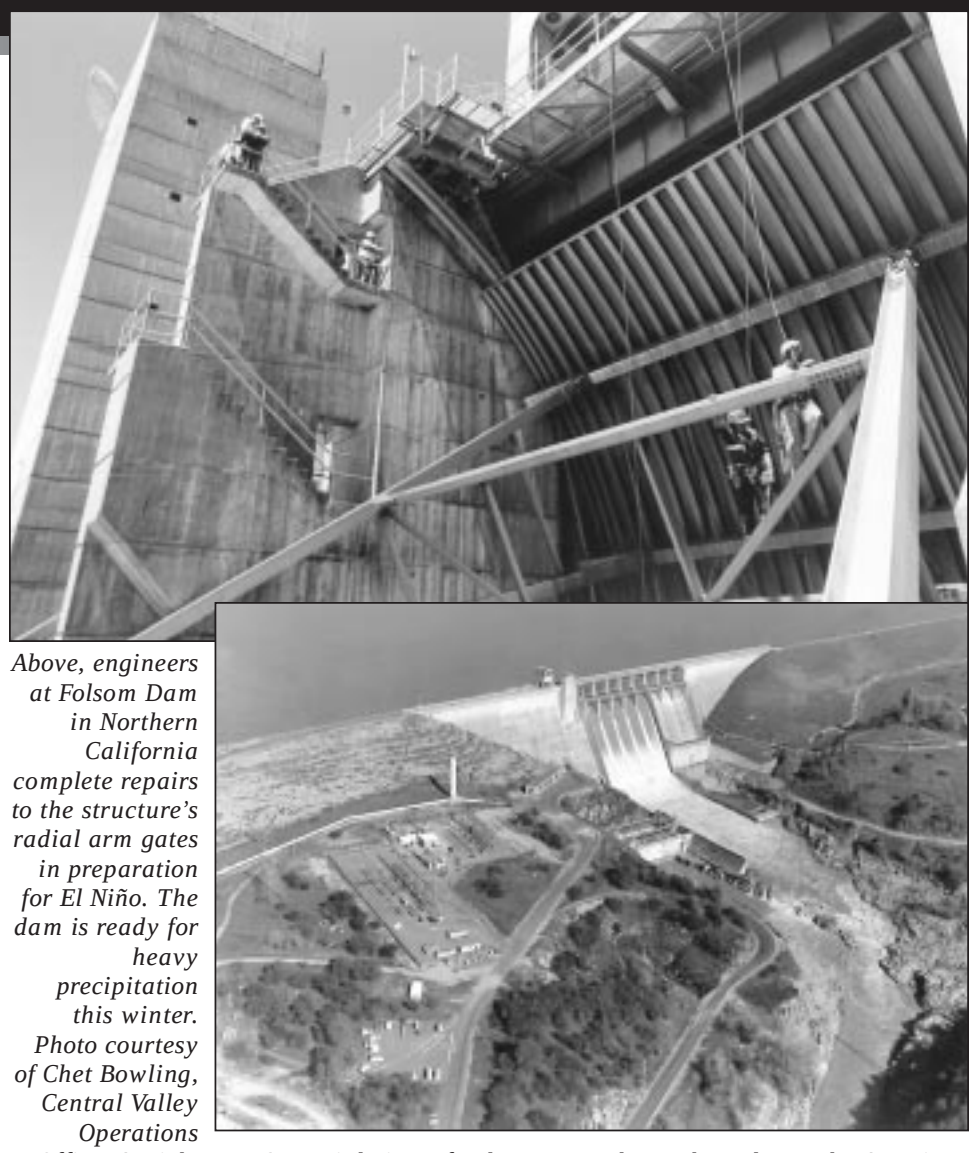
Fast Action Will Be Needed

The Department has been extensively involved in monitoring and evaluating the El Niño-Southern Oscillation forecasts (scientists call it the ENSO) since 1982. While the general ENSO phenomenon in the Pacific is somewhat predictable, with lead times from three to 15 months, the impacts on higher latitude atmospheric circulations are not thoroughly understood. "Specific weather patterns including storm tracks and river basins with flood potential cannot be defined more than three to five days in advance with any significant degree of certainty," says Commissioner Martinez. "So when we do have to act, it will be fast."

But past events and current information suggest the likelihood of frequent heavy precipitation this winter in the mountains of California, Arizona, New Mexico, and other areas important to the operations of Reclamation in the Mid-Pacific, Upper and Lower Colorado, and southern Great Plains Regions. This translates into potentially high water levels in reservoirs of the Central Valley Project, Reclamation's largest; the Colorado River Storage Project (which includes Lake Powell and Lake Mead); as well as a host of smaller projects in these areas. Northern projects on the Columbia, Snake, and Upper Missouri rivers may have warm, dry conditions and may need to increase their conservation storage pools.

Randy Peterson, the water manager for the Colorado River Basin, notes that significant operational actions to accommodate potentially high inflows in the spring are already underway. "Reclamation's water operations and management activities in each project area are already in a delicate balance of supply and demand," Peterson says. Reclamation has been preparing for the likelihood of storm events associated with this ENSO in all project areas that may be affected. But because day-to-day operations and management decisions must be made on a short term basis, changes in water management and operations will be in response to short-term weather forecasts that target specific storms.

"Reclamation engineers in key projects such as the Central Valley Project, Colorado River Basin, and Rio Grande Basin are currently examining the impacts of previous El Niño events," says **Lowell Ploss**, the manager of the Central Valley Operations. "And they will model the interaction of these events with project operating criteria to prepare a set of management action plans for potentially extreme weather events. If extreme weather occurs in a project area, Reclamation will already have outlined its action plan for responding. We've also developed detailed hydrographs of previous El Niño events



Above, engineers at Folsom Dam in Northern California complete repairs to the structure's radial arm gates in preparation for El Niño. The dam is ready for heavy precipitation this winter. Photo courtesy of Chet Bowling, Central Valley Operations Office. At right, a 1986 aerial view of Folsom Dam shows the Lake on the American River in the background. The dam and reservoir—part of the Central Valley Project—are located a few miles east of the state capital of Sacramento. The Folsom Switchyard and Powerplant are in the left foreground. Photo by J.C. Dahilig

El Nino Studies Coming of Age

While unusual climate fluctuations have been around for thousands of years, El Niño—the months-long shift in atmospheric and oceanic conditions—is a more recently discovered phenomenon. In the 1500s, Peruvian fishermen began noticing that particularly warm coastal currents decreased their catches of anchovy. Because the warming often peaked around Christmas, the phenomenon was nicknamed El Niño—the Christ child in Spanish. The name caught on and people everywhere recognized its tell-tale signs, but did little more than record it in mariner's logs and farmer's almanacs.

It wasn't until the late 1880s that scientists became fascinated with the event and began studying it—although predicting it was a far more difficult matter. There have been several significant El Niño years in the 20th century, especially 1982, when the weather disruption created extreme drought and floods. The effects of the 1982 El Niño caused the deaths of 2,000 people and structural damages of $8 to $13 billion.

Last month's issue of *People, Land, and Water* outlined the efforts of U.S. Geological Survey scientist to monitor and measure the impacts of the expected heavy rains, floods, coastal erosion, and landslides caused by this year's El Niño in the United States. This article discusses how the Bureau of Reclamation has been working with long range weather forcasters and a wide spectrum of water resource agencies and users to plan for the expected heavy rains, runoff, and snowmelt from this El Niño winter. The bureau also has been readying its reservoir structures and systems to ensure proper control and storage of El Niño's waters.

at key river gauges to provide water managers with detailed comparisons for their water management models."

To prepare for and accommodate potentially high inflows, Reclamation has carefully examined reservoir structures that were damaged by last year's floods. Priority has been given to the repair of structures that are in regions likely to receive heavy rain or snow. Due to mandatory dam emergency preparedness plans, Reclamation is already highly organized for emergency operations and ready to integrate the latest scientific information into its field operations.

Action Plans and Algorithms

"With our emergency action strategies and resources in place, it will ensure we are doing all we can to help minimize any negative impacts that El Niño has on our structures," says Commissioner Martinez. Emergency Action Plans, prepared in coordination with the Army Corps of Engineers and state and local officials, have been part of the standard operating procedures at all dams for years.

Dr. Arlin Super, Reclamation's expert on NEXRAD (NOAA's Next Generation Radar), is intensifying his effort to improve snow algorithms for use with mountain storms. (Algorithms are mathematical procedures for estimating the amount of snow melt runoff.) This will link mountain precipitation from winter storms to Reclamation water management operations in real-time. This work is funded by the NEXRAD Operational Support Facility and Reclamation's Safety of Dam's Program and its Research and Technology Transfer Program. Operational real-time links will be made through NOAA's National Operational Hydrologic Remote Sensing Center's Snowwater Equivalent Updating System in 1999. This linkage is co-sponsored by NOAA's Office of Global Programs and Reclamation's research program.

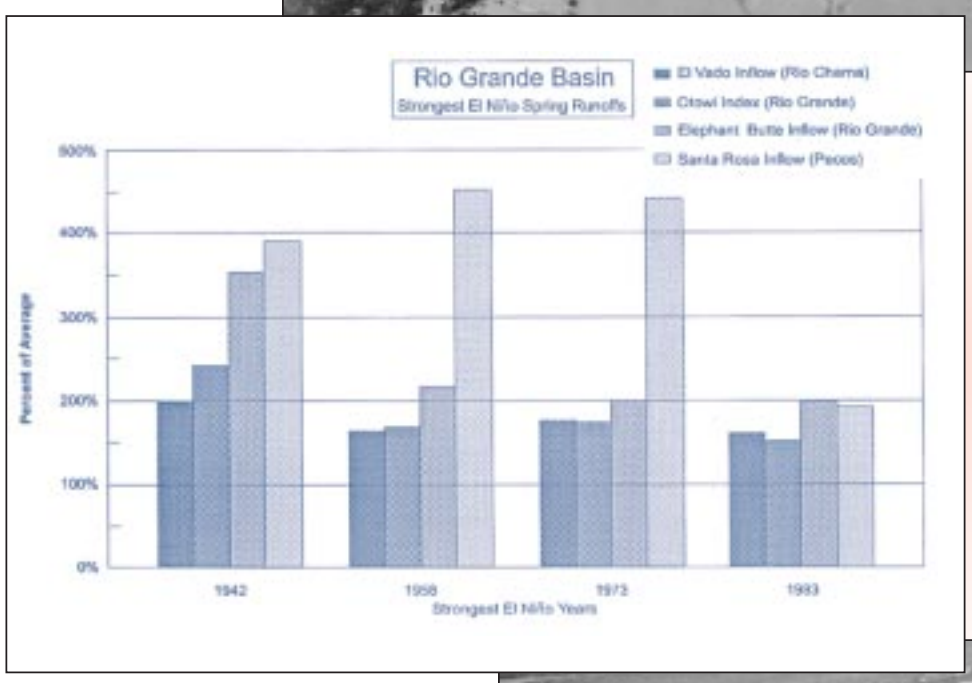
Not all of the El Niño-induced weather events are expected to be wet. There is also the dry side of ENSO. Reclamation has undertaken several initiatives to improve water management decision-making and actions that would respond to problems caused by drought. In Jan. 1997, **Secretary Babbitt**, Department of Agriculture Secretary **Dan Glickman**, FEMA Director **James Lee Witt**, and the Small Business Administration's **Philip Lader** signed a Memorandum of Understanding with the Western Governors' Association regarding future management of drought in the West. Under the pact's guidance, a Western Drought Coordination Council has been established to develop and carry out actions that can help reduce the impacts associated with droughts.

Reclamation has also agreed, in partnership with Nebraska's National Drought Mitigation Center, to conduct workshops on Drought Contingency Planning. More than 200 Western water managers flooded to the workshops in New Mexico and Utah. Additional workshops are scheduled for March 31-April 2 in Columbia, South Carolina; May 5-7 in Rapid City, South Dakota; and May 12-14 in the Cincinnati, Ohio area. These workshops address issues ranging from sources of climate and weather information, the necessary steps in preparing a drought contingency plan, identifying statistical triggers and responses to various drought stages, and mobilizing public participation. For more information on these conferences, contact **Tom Phillips** at (202) 208-7587.

To ensure timely and accurate interpretations of forecast information, Reclamation's ENSO team closely monitors the Climate Prediction Center's "Threat Briefing" and the Climate Diagnostics Center's weekly forecast debriefings. Current forecast information is provided through Reclamation's World Wide Web site **http://www.usbr.gov/rsmg/links/ensotsc.htm** that links directly to the most critical water resource-related forecast information from NOAA, NASA, and other laboratories and water resources sources. Reclamation has also developed an Internet link to keep its water operations managers in five regional and 56 area and field offices informed in real-time.

Following the winter and snowmelt seasons, Reclamation will continue to pursue efforts to improve its capability to receive and understand ENSO forecasts, as well as to plan for and respond to El Niño's and La Niña's effects well into the next century.

Also contributing to this article were Lew Moore, Charlie Brown, and Tom Phillips, Bureau of Reclamation.



At top, El Niño floods in 1941 washed out this bridge on the Rio Grande River. Photo courtesy of Karl Martin, Albuquerque Area Office. Above, high water flows of 9,000 cubic feet per second hit the Rio Grande Basin in 1958. At left, Rio Grande Basin stream flows more than doubled during strong El Niño weather events from 1942 to 1983, according to a study by Karl Martin in Reclamation's Albuquerque Area Office. Below, Reclamation dams and reservoirs—like the Horseshoe Dam of the Salt River Project in Arizona—carry out a critical flood control mission through their storage and release systems.

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Bureau of Reclamation

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Audubon Habitat Award for Wyoming Area Office

Elee Erice, Great Plains Regional Office

The Wyoming Area Office has received the Murie Audubon Society award for its wildlife habitat enhancement efforts at Glendo Dam Wetlands. The award was presented to Area Office Manager **John Lawson** and Water and Land Division Chief **Ken Randolph** at the local Audubon chapter's 12th Annual Benefit/Banquet on Oct. 25 in Casper. The award, not presented every year, recognizes efforts which result in significant habitat enhancement, and development of public wildlife viewing and educational opportunities.

Murie Audubon Board executive Dr. Kent Christensen, at podium, presents a wildlife habitat award to John Lawson and Ken Randolph of the Wyoming Area Office.

The Glendo Dam Wetlands enhancement and associated interpretive trail were made possible by installation of a low flow outlet at the dam and a check structure located two miles downstream from the dam near the Glendo Powerplant, both of which were constructed in 1992. The low flow outlet allows water releases from the reservoir of 25-40 cubic feet per second throughout the winter.

Prior to the construction of the outlet, the 20-mile stretch of the North Platte River below Glendo Dam was dry except for seepage and local precipitation. The check structure allows Reclamation, in cooperation with Wyoming's Game and Fish Department, to regulate the water level in the wetlands to benefit fish and wildlife habitat and control the population of cattails.

The interpretive trail complex—which includes 3.4 miles of trail, nine interpretive signs, two fishing/observation piers, six resting benches, a footbridge across the river, and public restroom facilities—was constructed by Reclamation in cooperation with Wyoming's Game and Fish Department. Recreational facilities at the wetland trail complex are managed by the Wyoming Division of State Parks and Historic Sites. The Murie Audubon Society is compiling a list of birds which frequent the wetland complex. The list will be made available to the public to enhance their bird watching experience.

Lower Colorado Region Specialist Honored

Natalie Woods, administrative specialist in the Lower Colorado Regional Office, was named Female Employee of the Year at the 20th Annual Southern Nevada's Governor's Committee on Employment of People with Disabilities. Natalie was recognized for overcoming her physical limitations, which include deafness, diabetes, arthritis, and scoliosis to succeed at work and in the community.

This was the second such honor Natalie has received. On Oct. 16, Natalie received Employee of the Year at the 1st Annual Disabilities Employment Awareness Awards ceremony at the Veterans Affairs Office in Las Vegas, Nevada, where **Reps. John Ensign** and **Jim Gibbons** presented Congressional recognition certificates.

Natalie Woods, shown with her hearing dog Barack.

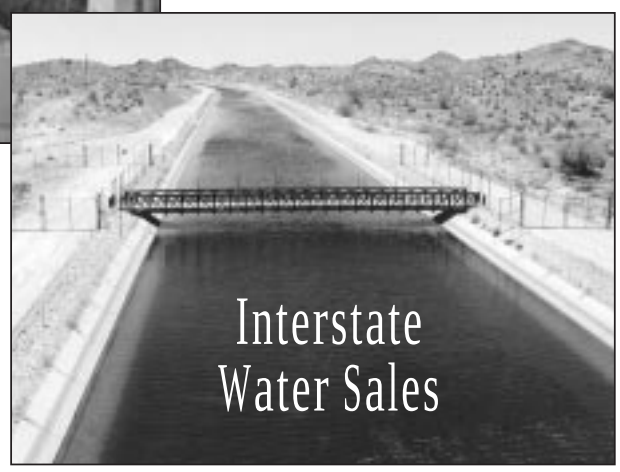
Reclamation Communication Award

Lynn Holt, Reclamation Service Center

Reclamation won two awards at the 1997 International Blue Pencil-Gold Screen Awards, sponsored by the National Association of Government Communicators. The awards were presented in conjunction with the Association's annual Communicator's Conference in Alexandria, Virginia, on Nov. 13. The Blue Pencil-Gold Screen Awards recognize exceptional publications, displays, audio, videos, photography, design, multimedia, and other communication mediums produced by all levels of government.

This year, *Your Guide to Fishing at Reclamation Reservoirs*, produced by **Elaine Simonson** and **Wayne Deason** (Program Analysis Office, Denver) and **Colin Moore** (B.A.S.S.) won third place in the "Publication for a General Audience" category. Reclamation's NPR Power Management Laboratory's report, *Future Generations: A New Era of Power, Performance, and Progress*, also received a third place award for the "Publication for a Technical Audience" category. This report was produced by Elaine Simonson and **Mike Roluti** (Program Analysis Office, Denver) and **Bill Coburn** (contract designer). Congratulations to our staff for continuing to produce such noteworthy publications!

Colorado Gold



The Colorado River, the most thoroughly managed and used source of water in the nation, supplies the very life blood of seven western states through a vast series of dams, like the Hoover Dam above, reservoirs, and canals. Photo of Hoover Dam by Andrew Pernick

Interior has issued the first-ever rule to permit interstate sales of water from the Colorado River, laying the groundwork for a regional water market that would enable the fast-growing states of Arizona, Nevada, and California to work out their critical water needs in an orderly fashion. Secretary Babbitt, who outlined the proposal in a wide-ranging speech to the Colorado River Water Users Association, also described criteria under which agricultural water from the Colorado River could be transferred to urban users, and cautioned that much still needed to be done before California was in position to live within its allocation of Colorado River water.

"The rule creates a procedural framework through which state-authorized entities in the Lower Division can develop storage credits associated with Colorado River water that is stored offstream, and then use or transfer these credits in the Lower Division," Babbitt said in his Dec. 18 address. "The preamble to this rule will note the importance of providing an opportunity for Indian tribes to participate in such storage and transfer activities."

Issued for public comment on Dec. 31, the rule should be particularly helpful to Arizona, which has enacted an offstream banking program, and Nevada, as it prepares to meet its critical development needs during the early years of the next century. It would allow Arizona, for example, which stores the unused part of its annual allotment of Colorado River water in underground aquifers, to sell some of its instream allotment to Nevada. Development around Las Vegas—the most rapid urban growth in the nation—is rapidly increasing the state's water needs.

The 1922 compact that sets distribution of Colorado River water allocates 7.5 million acre-feet a year to the lower basin states and an equal amount to the upper basin states of Colorado, Wyoming, Utah, and New Mexico. (An acre-foot contains 326,000 gallons, enough to supply a family of five for a year.) Explosive growth over the last decade caused some states to exceed their allotment. California, whose allocation is 4.4 million acre-feet, exceeds its limit by 800,000 acre-feet and has been living on the Colorado's annual surplus supply for the past decade.

For copies of the proposed rule, contact **Dale Ensminger**, Lower Colorado Regional Office, P.O. Box 61470, Boulder City, NV 89006-1470. Call (702) 293-8659. Written comments on the rule will be accepted until March 2. A draft environmental assessment on the rule also is available for review from **Pat Green** at (702) 293-8519. Comments, due by March 2, can be mailed to the Bureau of Reclamation, Administrative Record, Lower Colorado Regional Office, P.O. Box 61470, Boulder City, NV 89006-1470; or, they may be submitted by e-mail to <bjohnson@lc.usbr.gov>

Babbitt said as River Master, he would take whatever action necessary to help California develop a plan for living within its entitlement. He cited the Imperial Irrigation District and Palo Verde Irrigation District in southern California, both of which have increased water use in recent years. "This is a disturbing trend that affects California's attempt to develop its 4.4 Plan," Babbitt said.

California needs to curtail the wasteful use of water by agricultural districts and reallocate some of that precious resource to urban areas, Babbitt said, praising the proposed sale of 200,000 acre-feet a year of Colorado water by the Imperial Irrigation District to the San Diego County Water Authority. That sale would meet a urban area's needs without increasing the state's overall water demands.

Almost three-quarters of Southern California's water comes from the Colorado. Reclamation is studying if the three million acre-feet of Colorado water the Imperial Irrigation District annually uses conforms to the 'beneficial use' required by law. "Only once California resolves these issues, and has in place binding contracts," Babbitt said, "will I put into effect surplus criteria that will allow California to continue to meet its beneficial water use needs from the Colorado River surplus."

Unlike the simulated flood in April 1996, in which 45,000 cubic feet per second of water gushing through Glen Canyon Dam's eight-foot hollow jet tubes provided a dramatic backdrop, this time 30,000 cubic feet per second of water was released from inside the powerplant but still produced similar restorative effects.

Conserving Grand Canyon Beaches

Jayne Kelleher, Upper Colorado Region

A smaller version of the 1996 test flooding of the Grand Canyon was conducted Nov. 3-4, when the Upper Colorado Region again allowed high water releases from Glen Canyon Dam to stir up valuable sediment and redistribute it to make riverside beaches.

Heavy thunderstorms during last summer moved more sediment than normal into the Colorado River. Reclamation and U.S. Geological Survey officials, not wishing to lose this accumulated sediment downstream, recommended initiating this smaller flood to Secretary Babbitt. The proposal was consistent with the preferred alternative of the environmental impact statement on the operations on the Colorado River Storage Project, of which Glen Canyon Dam, located near Page, Arizona, is a key unit.

Unlike the 1996 experiment, this time there was little political opposition from water and power interests. Due to a large amount of water in Lake Powell and the fear of another wetter-than-usual winter, Glen Canyon Dam has been releasing between 17,000 and 23,000 cubic feet per second of water already, which is well above the average flows for this time of year. The releases ran at full powerplant capacity, 31,000 cubic feet per second, for 48 hours.

Because past research shows that a gradual flow decrease protects the just-enhanced beaches from erosion, dam operators slowly reduced the flows to regular levels for this time of year. The increased flows, which lowered the lake level by three inches, were designed to splash sediment up onto the banks and backwaters of Marble Canyon, where they are needed for ecological purposes. Early scientific research shows that the mini spike flow succeeded in accomplishing that. Secretary Babbitt praised the release as a valuable use of adaptive management. "It was precisely the sort of innovative step that **adaptive management** permits and encourages. We were able to show the benefits of this process for future operation of Glen Canyon Dam."

Water Conservation Awards

"Water is the West's most precious and finite natural resource," Commissioner Martinez said in announcing the winners of the 1997 Water Conservation Award program. "They have proven that they are wise stewards of this resource, and I am pleased to recognize their efforts." The ten winners by category are:

Efficient Water Management—**The East Bay Municipal Utility District of California**, was recognized for a long term urban conservation effort based on a water conservation master plan, leading to a 24 percent reduction in per capita use since 1976; and **La Quinta Inns, Inc., Texas**, was honored for an aggressive water conservation program and in-house utility information management system in more than 250 hotels that saved six million gallons in drought-stricken 1996.

Innovation and Invention— **The Residential Survey Program Advisory Committee, Metropolitan Water District of Southern California** received the award for innovation in sharing techniques on residential in-house survey programs; and **Elephant Butte Irrigation District, New Mexico**, won for innovation in agricultural water measurement.

Small Demonstration Project—**Utah Water Wise, Utah**, was recognized for first-year success in a classroom-to-home conservation education program in 13 schools, by the National Energy Foundation in partnership with several in-state groups; and **City of Houston Water Conservation Branch and Housing Authority, Texas**, for a pilot conservation project in 60 units of low income multifamily housing that dropped per capita use from double the city average to nearly half the city average.

Large Conservation Project—**North Side Canal Company**, **Twin Falls Canal Company**, and **Irrigators Water Quality Committee, Idaho**, for a water conservation plan developed to address water quality issues; **North Unit Irrigation District, Oregon**, for an ambitious self-financed canal lining project; and **El Dorado Irrigation District, California**, for a successful irrigation management service program in place since 1976.

Long Term Leader—**Ken Ball, Denver Water Department, Colorado**, for 30 years of local and national water conservation leadership.

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Reclamation's Strategic Plan

Karen Pedone, Commissioner s Office

Reclamation's strategic plan provides 16 clear, prioritized strategies for agency activities and resources in the coming years. The plan, organized around three mission-driven objectives (water and energy, environment and related resources, and productive business practices), was created by Reclamation's staff and Policy Team, consisting of the Commissioner and agency executives. Employees and customers provided their input throughout the process, making this a staff-drafted, customer-driven, living document. The various meetings throughout the 17 Western States and Washington, D.C. included employees, customers, and the public. The Commissioner's Office continues to host monthly meetings for Reclamation's customers to ensure they are kept abreast of agency decisions.

Reclamation's main goal is to meet its historic mission of supplying agricultural water while providing water supply for a multitude of other purposes that include: assisting urban areas to meet their water needs; furthering Native American and Tribal self-sufficiency; fostering fish and wildlife protection, endangered species recovery, recreation, and environmental enhancement and restoration; and minimizing the impacts of extreme weather (floods and drought).

Because the amount of water that once served a population of 10 million people in 1902 must now serve a growing customer base of 80 million, the challenge is how to best manage the quantity and maintain the quality of finite water resources in a region experiencing population growth and demographic relocations without adversely impacting critical aquatic ecosystems.

GPRA Gameplan, 10-11

Reclamation will continue to work with the Congress, other federal agencies, states, Native Americans, local interests, and the public to meet water and related resource needs of the 21st century. In developing and implementing an effective water resources management program, the agency takes into consideration the goals and objectives of states, Tribes, and others. The agency's next step is to refine the First Annual Performance Plan for Fiscal Year 1999.

Catch a Special Thrill

What could be more rewarding than giving a disadvantaged or disabled youth the joy of a day spent fishing in the outdoors?

Reclamation has joined with C.A.S.T. (Catch A Special Thrill) for Kids Foundation to do just that. A Memorandum of Understanding signed Dec. 12 expands the relationship between the two organizations to educate young anglers about boating safety, angler ethics, and the importance of natural resources such as fish and water. "We are thrilled to have this opportunity to give back to the local communities where we live," said **Commissioner Eluid Martinez.** "Some of the most treasured moments in my life are taking my grandchildren fishing. Being able to give disadvantaged children a similar opportunity is a very rewarding experience."

Reclamation's Upper Colorado Region hosted its first C.A.S.T fishing day at Jordanelle Reservoir in the fall of 1997. Employees donated more than $600 and hundreds of volunteer hours to help make this event a success.

"Working with Reclamation people in the past has been so rewarding because of their dedication," said **Jim Owens**, executive director for C.A.S.T. "I'm looking forward to working even closer with them in the future. This agreement should help us expand our efforts to positively impact disadvantaged children throughout the United States." Next summer, at least 10 C.A.S.T events are planned for Colorado, Idaho, New Mexico, Oregon, and Washington, D.C.

The National C.A.S.T. Foundation has partnerships with several other federal agencies besides Reclamation, including the BASS Federation, state and local government agencies, and national, regional, and local sponsors, who donate equipment and volunteers. To date, C.A.S.T. has served 7,000 children.

Redlands Fish Ladder a Success

Fish and Wildlife Service biologists report that 18 endangered Colorado squawfish have used Reclamation's new Redlands fish ladder on the Gunnison River in Grand Junction, Colorado, along with thousands of non-endangered native fish. This is the first full year of operation of the ladder and use is meeting—and exceeding— expectations. The ladder provides a passage for fish to reach their spawning and feeding habitat, an area that had been out of reach to them for nearly 80 years.

Bureau of Land Management

Pat Shea, Director
Patrice Junius, Bureau Editor

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Secretary, Director Stress BLM Diversity Initiatives

From left, Caryl Turner, Stephanie Bolan, Secretary Babbitt, Alma Lively, and Jose P. Carillo.

Four minority college students who have been promised full-time jobs with the BLM upon their graduation and successful participation in a career training program recently met with **Secretary Babbitt** and **Deputy Secretary Garamendi** during an orientation briefing on their employment project.

"Secretary Babbitt, Deputy Secretary Garamendi, and I are committed to recruiting and hiring a talented workforce that reflects America's diversity," said BLM **Director Pat Shea**. "These students, who represent our rich Hispanic and African-American heritage, are top-notch. We look forward to having them join us."

Two of the students, **Jose P. Carrillo** of Chama and **Alma Lively** of Ruidoso, are seniors at New Mexico Highlands University in Las Vegas, New Mexico. Carrillo is studying environmental engineering; Lively is majoring in mass communications. As an introduction to the BLM and its management of natural resources, Carrillo and Lively in January attended top-level management meetings, where they received briefings on BLM issues and met with **Assistant Secretary Bob Armstrong**.

The third student, **Caryl Turner** of Sterling, Virginia, is part of the BLM's Student Career Experience Program and is serving as a program analyst trainee in the BLM's Washington, D.C., office. She is a graduate student at Old Dominion University in Norfolk, Virginia, and is pursuing a degree in physical education with an emphasis in outdoor recreation and park administration. **Stephanie Bolan**, a graduate student in forestry and recreation at the University of Kentucky, will be on a one-year detail with the BLM as a recreation specialist in the BLM's Headquarters in Washington, D.C., as part of the Student Career Experience Program.

Shea said Secretary Babbitt has set five diversity goals for the BLM and other Interior agencies: 1) to recruit a workforce that reflects the diversity of the American people; 2) to retain that workforce; 3) to institutionalize managers accountability for ensuring diversity; 4) to educate managers and rank-and-file employees about diversity; and 5) to carry out a zero tolerance policy toward discrimination, harassment, and hostile work environments.

BLM **Deputy Director Tom Fry** said that to reach these goals, the BLM must overcome its past. "The fact is, our agency has not been as aggressive as it should have been in recruiting minorities," Fry said. "We are taking steps to remedy that situation, and one of the ways we are doing that is by strengthening our partnerships with Hispanic and African-American institutions." The BLM was among several federal agencies that recently co-sponsored the Hispanic Association of Colleges and Universities International Conference on Natural Resources and Cultural Heritage, in Tempe, Arizona.

Washington Office employees use the shuttle to get to and from the BLM's L Street and Main Interior Buildings.

The Eco Shuttle

Tom Gorey, Washington, D.C.

The BLM Washington, D.C. office is using a shuttle bus that runs on environmentally-friendly compressed natural gas rather than gasoline. The bus ferries BLM employees 14 blocks between the Main Building and a BLM office at 1620 L St., N.W., where most of the agency's D.C.-based employees work. The BLM is Interior's first agency to use such a shuttle in the Capital area. Priority One Services, Inc., of Alexandria, Virginia, provides the service.

"The new shuttle bus will contribute to cleaner air in our nation's capital," said BLM Director Pat Shea. "Moreover, the shuttle's use of natural gas, rather than gasoline, shows how modern technology will enable the United States to reduce greenhouse emissions that cause global warming." The bus, which seats 18 passengers and is accessible to the disabled, became operational in Dec. 1997, when the United States and representatives of more than 150 other nations negotiated a global warming treaty in Kyoto, Japan. The treaty is aimed at limiting emissions of gases that contribute to the greenhouse effect in the Earth s atmosphere.

Idaho Office Hosts Interns

It helped them gain valuable experience, to see what a forester's job is really like, how they might fit into a land management team, and what courses or graduate work they should take before launching their careers.

Seven students from the Alabama A&M University spent ten weeks with BLM mentors last year as part of the bureau's summer internship program. Five spent their internship with BLM in Idaho, while two forestry majors went to Wyoming after completing a Forestry Field Technique course.

The interns received training and course work in a variety of fields, including forestry, civil engineering, and environmental science. "All the interns received high performance ratings, and one is being considered for the Student Career Employment Program," said **Dr. George S. DaBai**, a liaison officer for the Historically Black Colleges and Universities Partnership in Education Office at Alabama A&M University.

Summer interns join BLM officials at an Idaho State Office summer picnic in Boise. From left, Carol Lofquist (BLM office), Rodney Bettis, Thaddeus Sam, Toney Brown, Martha Hahn (BLM Idaho state director), Brian Thomas, and Jeff Steele (BLM office).

Las Vegas Firm Guilty of Toxic Waste Dumping

Two Arizona men have pled guilty, and will spend a total of four years in prison, for the unlawful disposal of wastes on BLM and state lands near the Virgin River in northwestern Arizona. Gene Marion Lefave, president of Fluid Polymers, Inc., and his son, Louis Alphonse Lefave, admitted that they disposed of seven, 55-gallon drums containing hazardous wastes on BLM managed lands and an additional seven drums on lands belonging to the State of Arizona near Interstate Highway 15.

U.S. District Judge Stephen McNamee accepted the guilty pleas and sentenced the defendants at a late December hearing in Phoenix. Gene Lefave was sentenced to 32 months and his son Louis will spend 16 months behind bars. The corporation and the individual defendants were also ordered to pay $31,000 in restitution to the BLM and the State of Arizona for site testing and clean up costs.

Fluid Polymers, Inc., a Nevada corporation located in Las Vegas, manufactured adhesives, polyurethane, and rubber products. In 1995, the men knowingly disposed of numerous drums that contained chemical wastes potentially harmful to people and the environment. They did not have permits to dispose of the waste.

"I hope this case will help send the message that as responsible stewards, the BLM will not tolerate the illegal disposal of hazardous materials on our public lands," said BLM **Special Agent Pam Stuart**. "The agents and specialists involved in this case provided me assistance above and beyond what I expected, and I want to personally thank them for their invaluable work."

Stuart headed the investigation in close coordination with the U.S. Environmental Protection Agency. In addition, BLM Arizona Strip Field Office **Ranger Ken Armstrong** and Hazardous Materials **Coordinator Robert Smith** contributed greatly to the investigation. BLM **Hydrologist Pete Wilkins** from Utah's Cedar City District and BLM **Special Agent Mary Jo Stauner** from Nevada also gave their expertise in putting together this case.

"I think the judge sent a very strong message to these men," said BLM-Arizona **State Director Denise Meridith**. "However, it is certainly unfortunate that we have these cases on public lands. Our natural resources are precious. Most people respect our lands and environment, but for those who break the law, we will take action."

Come the Fire Season, the Great Basin Cache is Ready

More than 5,000 sleeping bags are on the shelves, a half million AA batteries are in the cooler, and more than a million feet of hose have been tested and cleaned. In fact, there's enough equipment, food, and clothing in the Great Basin Fire Cache to put 10,000 fire-fighters in the field. And it's all waiting at the National Interagency Fire Center (Boise, Idaho) for the fire season to ignite.

Refurbished pumps are ready, the shelves are stacked high with firefighters' kits, and 2,000-gallon water buckets await their helicopter carriers.

Linda Bass, the cache supply officer, has kept her staff busy with preparations for the time when the eight-hour days of winter can turn to 24-hour, hectic activity during the spring, summer, and fall. During the winter, the staff begins assembling the 24 different kits that will be needed for the fire season, starting with 350 fire packs and 150 chain saw kits for the smokejumpers. Additional kits are assembled closer to fire season because they contain dated material such as medical supplies and food. Under a strict schedule, all equipment must be tested once a year as well.

"We take this time of the year very seriously, so that when fire season comes we are ready," said Bass. "At the end of this process, we have a high level of confidence in our state of readiness." During a fire season, the cache staff receives supply requests through established channels. The items are then mobilized and dispatched to a fire area using the most cost-effective method that meets the predetermined time frames.

But the winter business often brings something new each day. In addition to preparing for fire season, the cache workers build several survival kits and office supply kits for natural disasters, through an agreement with the Office of Foreign Disaster Assistance. The cache is also the national and international source for more than 600 fire publications and training materials for the National Wildfire Coordinating Group. This makes the winter a very busy second-season, as multiple requests from the government and private sector are processed.

"The cache must switch hats and become a small business in the winter," Bass said. "The intensity increases as a lot of time is spent explaining to diverse winter customers how the cache operates." An annual inventory also must be completed at the beginning of each calendar year. But before that, supply items are redistributed among the 11 Geographic Area Caches in the nation—a cost-effective way to meet inventory stocking levels. When the redistribution and inventory are completed, the staff replenishes the $15 million cache with the necessary items.

The staff also maintains a 75 percent return and reuse rate for items in serviceable condition. Items that can be recycled are cleaned, repaired, tested, and repackaged. In an average year, each piece of equipment may be processed in and out as many as five to ten times. The winter also brings a chance for the management staff to complete administrative responsibilities such as hiring employees, establishing hiring agreements with the local Job Service, preparing for spring meetings, and reviewing research and development findings. Supply officers also spend time updating the National Fire Equipment System catalog. "We are trying to make the catalog more user-friendly," said **Dan Rodwell**, the assistant supply officer. In response to suggestions from the field, we are alphabetizing the catalog and including pictures of some kits."

BLM Arizona Officials Assist South African Biodiversity Effort

Dorothea J. Boothe, Arizona State Office

BLM Arizona State Director **Denise Meridith** and Special Assistant for International Programs **Beau McClure** offered technical assistance on public land management issues in a workshop at the Richtersveld National Park in South Africa. The South Africa National Parks Board organized the two-day conference to identify existing information and data gaps that need to be filled to create a livestock management plan. The plan would provide for continued livestock grazing while conserving the unique biodiversity of the park. More than 20 experts from South Africa attended the sessions.

Above right, Denise Meridith. Above, the participants in the Richtersveld biodiversity workshop.

"It was most interesting to see another country struggling with the same challenges and dilemmas that we are," said Meridith. "That is, how to maintain the economic viability of a traditional and valued lifestyle (livestock grazing), while protecting the invaluable riparian habitat on which its sustainability depends."

The BLM's participation is part of the Interior's commitment to The Partnership for biodiversity, which includes the Department, the US Peace Corps, and the US Agency for International Development. The partnership offers international assistance to conserve biodiversity and promote sustainable development. The Richtersveld initiative is a pilot project under the partnership agreement.

Known for its biological diversity in vegetation, Richtersveld National Park is located in one of the driest regions in South Africa. This remote park can lies along the Orange River, bordering Namibia, in northwestern South Africa. Many of the issues faced by the park's manager are similar to those BLM managers face everyday—livestock grazing, vegetation and riparian area management, mining impacts, and conservation of natural and cultural resources.

After the workshop, Meridith and McClure visited with students and faculty at local universities to deliver slide presentations and talks about BLM's history, responsibilities, and international programs. They also met with South African scientists and representatives of nongovernmental organizations to discuss their interest in research and support for the Richtersveld project. The pair also discussed their involvement in South Africa's National Action Programme under the United Nations Convention to Combat Desertification. They want to organize a future symposia and workshops in Africa related to combating desertification at the community level.

Addressing Public Land Challenges

A growing and increasingly urban population is placing new demands on the public lands. Coupled with growing public concern over the health of the environment, more complex legal mandates, a greater knowledge of how to manage natural resources on a sustainable basis, and technological advances, these demands are creating profound challenges and opportunities for the BLM. The BLM Strategic Plan describes these challenges and opportunities and outlines what BLM is doing to address them.

The plan, which builds on BLM's *Blueprint for the Future* (published in Sept. 1994), is organized around five Blueprint goals and expands on many of the issues initially discussed in that document. The first section describes the variety of goods and services that the BLM provides to the American people. These include, for example, opportunities to use the public lands for livestock grazing, timber harvesting, energy and minerals production, and other commercial activities; the protection of significant natural and cultural heritage resources on the public lands; and opportunities for hunting, fishing, river rafting, and other dispersed recreation activities.

Sections two through five outline what the BLM is doing to restore and maintain the health of the public lands, including establishing standards for the health of the lands, identifying resources at risk, and restoring degraded areas; building effective partnerships with public land users, adjacent landowners, other agencies and government entities, and private organizations; strategies to improve BLM business practices; and human resources management.

The 17 strategic goals presented in the plan are comprehensive, covering all of BLM's major activities and programs. The sections of this plan are highly interdependent. For example, the BLM will be able to continue to provide the American people with renewable resource goods and services only if the public lands are healthy and productive. Public lands will be healthy and productive only if people work together. And the BLM will only be able to accomplish its mission goals with an effective organization—the focus of the sections on business practices and human resources management.

Public meetings were held during the development of the BLM Plan, and it was available for review and comment on the Internet. Input was received from many customers and stakeholders, including the Congress, federal, state, and local agencies, constituent groups, employees, and the public. The BLM continues to cooperate with 14 federal natural resource management agencies (in and outside the Department) to develop complementary goals and performance measures. The BLM, the Natural Resource Conservation Service, and the U.S. Forest Service are working to develop common natural resource inventory standards and measures at the landscape level. The BLM has established cooperative performance goals with the U.S. Forest Service, U.S. Fish and Wildlife Service, Bureau of Reclamation, and National Park Service. Working with the National Performance Review, the BLM and other agencies have established goals in the areas of recreation and customer service.

At the local level, many field offices are developing plans of their own that nest within the national framework, sharing goals with county, state, and tribal governments and other federal natural resource management agencies. The BLM will continue to build on its Strategic Plan, measuring performance, and reporting to the American people progress toward meeting goals. The strategic plan, outlined on pages 10-11, is on line at **www.doi.gov/fysp.html**

Cynthia Quarterman, Director
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New Studies Track Belukha Whales in The Arctic

Warren Horowitz, Alaska OCS Region

The Native people who live in the Beaufort Sea and Chukchi Sea coastal communities depend upon the harvest of the belukha whale for food and to maintain their traditional subsistence way of life. Over the next few years, MMS anticipates the first oil development projects in federal waters of the Beaufort Sea Continental Shelf.

To prepare for this possibility, MMS Alaska Outer Continental Shelf Region has launched an international cooperative research project using satellite tracking technology to study the migration corridors, habitat preferences, and behavior of the belukha whale in the Alaska Outer Continental Shelf Planning Areas. The MMS-initiated study, *Satellite Tagging and Tracking of Belukha Whales, Arctic*, involves the coordinated efforts of the MMS, the Fisheries Joint Management Committee, Inuvik North West Territories Canada, United Kingdom Sea Mammal Research Unit, and the Inuvialuit hunters, to capture belukha whales and track their fall migration routes through the areas.

In the past, the distribution, population estimates, behavior, and habitats of belukha whales were determined, in part, by local knowledge, land-based observations, oil and gas site-specific monitoring, and government funded aerial surveys. However, limited flight time, weather, sea ice conditions, and the brief amount of time that a whale may be present at the surface have been major physical constraints to these surveys.

In recent years a new technology for observing the behavior of whales was developed by using satellite-linked transmitter tags on whales. The MMS funded some of these earlier studies using satellite-linked tags on right and bowhead whales. This alternative method allows MMS scientists to collect location and dive depth behavior of the individual whales for extended periods beyond the geographic range of earlier data collection techniques.

The belukhas accumulate in the shallow estuaries of the Canadian Beaufort Sea in the summer months and move into deeper waters during their fall migration where they are less likely to be captured and tagged. In the MMS's study, satellite tags were placed on the belukhas in summer 1997 by capture teams from the Canadian Beaufort Sea villages of Inuvik, Aklavik, and Tuktoyaktuk. The teams relied on their traditional knowledge to identify the best shallow-water capture sites in the estuaries of the Canadian Beaufort Sea, and the latest time-window for capture before the whales' fall migration.

It was imperative that they attached the transmitters at this time to preserve the battery life and extend the time the transmitter sends data back from the whales. Most belukha whales were tracked westward across the Beaufort Sea to the Chukchi Sea, then south toward the Bering Strait. The satellite-linked, time depth recorders and transmitter technology used in the project was devised by the United Kingdom Sea Mammal Research Unit. This technology has obtained detailed information on belukha migratory routes between summer and winter areas of concentration, dive depth behavior, and habitat preferences in waters above the Beaufort and Chukchi continental shelf and slope.

In the future, MMS scientists may also learn more about the belukha's spatial relationship between sea ice and areas of feeding. In addition, more accurate population estimates may be obtained by evaluating data from both satellite tags and aerial surveys, because belukha whales tracked by the tagging studies may represent animals that migrate outside the geographic area flown by the aerial survey team. The satellite transmitters have already provided real time location data that allowed MMS to find groups of belukha whales during the annual fall aerial whale survey in the Beaufort Sea.

A TALE OF A WHALE

MMS ALASKA OCS

Members of an international MMS-initiated cooperative research team capture, measure, and tag belukha whales to track their fall migration routes. The Beaufort Sea stock of the belukha whale winters in the Bering Sea and migrates in the spring and summer to the estuaries of the Canadian Beaufort Sea and Amundsen Gulf. In the late summer, the belukhas migrate westward through the Beaufort and Chukchi Alaska Outer Continental Shelf (OCS) Planning Areas toward their winter habitat. Photos by Joey Amos.

MMS Guides Anglers to Best 'Rig Fishing' in Gulf Waters

Villere Reggio

Where there are platforms, there are fish. Offshore fishermen made this association more than 40 years ago and continue to harvest fish for food and fun wherever natural gas and oil are produced in the Gulf of Mexico. The corals and other species that use the submerged parts of the platform structures for a home develop food chain communities that attract the fish.

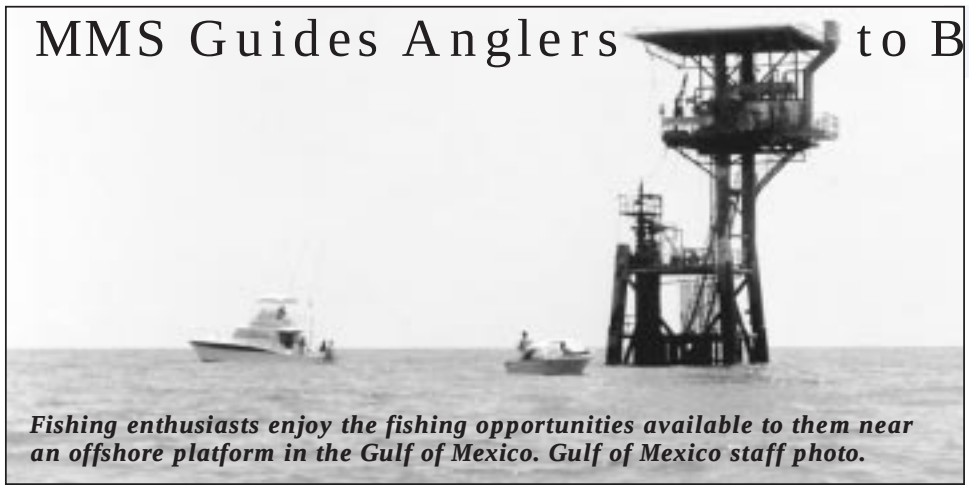
So when **President Clinton** encouraged federal agencies to expand the use of public lands and waters for outdoor recreation in an executive order on recreational fishing, MMS came up with a way to help anglers and divers enjoy more of the recreational benefits of production platforms and artificial reefs in gulf waters.

With more offshore platforms than any other state, Louisiana has a long history of enthusiastic "rig fishing." MMS offered the state's Department of Wildlife and Fisheries the means to produce a map with the locations of artificial reefs, gas and oil production platforms, and rigs-to-reef sites. The map also contains colorful depictions and technical descriptions of popular sport, the location of boat launching sites, state and federal jurisdictional boundaries, and tips for enjoyable and productive offshore fishing trips.

Sales of the map enabled Louisiana to complete a series of six other coastal and offshore maps, including one focusing on its offshore Rigs-to-Reef sites. The Rigs-to-Reef program has become an increasingly popular fishery management tool for the gulf states. In response to public demand, the MMS has been cooperating with these states and the oil industry on the recycling of used oil and gas production platforms into artificial reefs. Over the last ten years, 35 oil companies have donated more than 100 structures for use on Rigs-to-Reef sites that are established by the gulf states.

When Alabama, the first gulf state to develop offshore artificial reefs, saw the Louisiana fishing maps, they asked MMS for help to produce a similar one for Alabama's marine fishermen, who also had become aware of the outstanding fishing found near offshore production rigs. MMS's professional staff worked with Alabama's Division of Marine Resources to develop a mutually acceptable format that enabled MMS technical experts to produce a draft. Alabama then put that map into a single guide covering their primary coastal and offshore marine fishing areas.

See page 31 for additional information on 'Rig Fishing'.



Fishing enthusiasts enjoy the fishing opportunities available to them near an offshore platform in the Gulf of Mexico. Gulf of Mexico staff photo.

Maritime Boundary Talks *MMS Offshore Staff*

Secretary Babbitt and Mexican Foreign Secretary Angel Gurria have announced plans to resolve a longstanding boundary issue between the two nations. The announcement of the talks follows the recent exchange of instruments of ratification, placing in force maritime boundaries off the coast in the Gulf of Mexico and the Pacific Ocean. That treaty did not address two gaps in the areas beyond 200 miles from the coastlines of the two countries in the Gulf of Mexico. The purpose of the discussions is to establish a continental shelf boundary in the Western Gap.

U.S. oil and gas exploration and leasing activities have progressed toward deep water areas in the vicinity of the Western Gap. Under the Outer Continental Shelf Lands Act, the Secretary's five-year offshore program provides for two sales in the Gulf of Mexico annually. Although the northern portion of the Western Gap has been offered in past lease sales, the most recent sale in August 1997 (Sale 168) offered the area under special provisions to hold bids unopened until a Secretarial decision on or before March 3, 1998. In light of the joint undertaking to commence discussions in the very near future, and after consulting with the Department of State, Secretary Babbitt has determined that it is in the best interests of the United States to return all unopened bids from Sale 168. For the same reason, the Secretary will withdraw the tracts in the Western Gap area proposed for lease in upcoming Sale 169 (tentatively scheduled for March 1998).

GPRA Strategic Planning for the Future

Barbara Desiderio

In response to the Government Performance and Results Act, MMS began to develop its Strategic Plan in 1994. All members of the organization—managers, supervisors, and staff—were encouraged to participate throughout the planning process. Stakeholders were continually consulted and their feedback was used to fine tune the plan. The result is a strategic plan with goals and objectives that are clear, measurable, and relevant to MMS's fundamental mission. Performance measures are designed to serve program managers.

MMS's plan has three major goals: The two programmatic goals reflect the primary aspects of our mission—to manage the mineral resources on the Outer Continental Shelf (OCS) in an environmentally sound manner and to timely collect, verify, and distribute mineral resources from federal and Indian lands. Developing performance measures that are an effective means of gauging its success in meeting these goals was difficult because of the level of control that MMS can exert over desired outcomes. MMS has tried to minimize this factor in the performance measures and indicators, but cannot eradicate it. The third goal focuses on human resources, encouraging a workplace culture that brings out the best in our employees.

GOAL 1: Provide for safe and environmentally sound mineral development on the OCS, and ensure that the public receives fair value for the nation's oil and gas resources. For its first performance objective under this goal, MMS relies on an index that relates the severity and number of accidents (e.g. injury, fire, collision) to various OCS activities that are weighted according to their relative complexity and risk. The resulting index rate is a gauge of whether offshore operations are improving on an already commendable safety record. While the MMS cannot directly control the actions of offshore operators and workers, it hopes to have a profound effect on the safety of OCS activities through its strict regulatory, inspection, and safety training programs.

The second MMS performance objective is to ensure environmentally sound OCS mineral development. MMS intends to use a decrease in the number of adverse environmental impacts per OCS activity and a decrease in oil spilled as indicators for meeting this objective. The former indicator is still under development with baseline levels expected to be in place by the close of 1998.

While MMS is a relatively small bureau, its activities provide major economic and energy benefits to the nation, taxpayers, states, and the American Indian community—benefits that have both national and local significance. MMS currently administers some 27 million acres of active Outer Continental Shelf (OCS) leases which contribute more than 25 percent of the natural gas and 12 percent of the oil produced in the United States. Since its inception in 1982, MMS has distributed about $86 billion in revenues.

To evaluate whether MMS is receiving fair value for OCS minerals development, the agency is using two indicators. One is a ratio of high bids received versus MMS values for its OCS mineral leases. A benchmark ratio of 1.8 has been set. The agency is also using incident of "discoveries" on leases that are classified as "non-viable" as an indicator. In this case, improving its track record (by decreasing the incidents below seven percent) would show progress.

MMS's final Goal 1 performance objective is to provide for minerals development on the OCS. The indicators used here focus on three parameters: an increase in the annual number of leases on which exploratory wells are drilled; slow the decrease in proven gas and oil reserves relative to production (finding more resources faster than they are being removed); and an increase in annual OCS production over 1996 levels.

GOAL 2: Provide timely, accurate, and cost-effective mineral royalty collection and disbursement services. The first objective is to improve the timeliness and accuracy of payments to states, Indian tribes, BIA offices, and other federal agencies. To be on-time, disbursements must be made by the end of the month following the month of receipt. As a way to gauge our performance, MMS tracks the percentage of payments made on time as well as the amount of interest paid on late disbursements.

MMS also set a goal to improve the cost effectiveness of mineral royalty collection and disbursement services. It tracks the percentage of reports and payments received electronically as an indicator of performance toward this goal. The current plan is to make electronic reporting a requirement except in hardship cases by 1999. Electronic reporters have substantially lower error rates—less than one percent for electronic royalty reporters, compared to more than six percent for manual reporters. Fewer errors provide cost savings to MMS and its customers.

Improving reporters' compliance with lease terms, rules, regulations, and laws is a third objective. To monitor progress, MMS tracks the percentage of royalty and production reports submitted by reporters without fatal errors—those errors which would prevent the disbursement of funds or further processing. MMS is also testing an overall outcome measure, called a compliance index, summarized by the formula:

$$\frac{\textbf{actual voluntary royalty payments}}{\textbf{expected royalty payments}}$$

The compliance index model calculates expected royalty payments using available information and public price data. The validity of the model improves as model estimates are compared to audit results. As MMS continues to maintain audit coverage to monitor compliance, the validity of the compliance index will be strengthened.

MMS is committed to provide Indian tribes increased opportunities for education and for assuming functional responsibilities with respect to the Royalty Management Program. To help tribes prepare to assume royalty management services, MMS offers a number of opportunities, including on-line monitoring of royalties and accounts, learning our royalty collection processes through a new internship program for tribal employees, and handling royalty audit work through cooperative agreements. To measure success, MMS will continually increase the number of tribes that participate in these opportunities. The MMS is also committed to improving service and communication to its customer groups, including the oil and gas industry, states, Indian tribes and individual Indian mineral owners.

GOAL 3: MMS's greatest strength is the employees who directly influence the agency's ability to accomplish its mission—they are the greatest asset. MMS intends to continue to develop, empower, and recognize and strengthen the diversity of its employees. To gauge its success, indicators focus on documenting core competencies; tracking employees participating in training, educational, team, and rotational assignment opportunities. Another indicator measures employees access to automated desktop tools and web-based applications needed to better perform their jobs.

Where do we go from here? Through the 1999 Annual Performance Plan, MMS has started to link performance elements to budget. The Annual Plan connects the three long-range or strategic goals with annual performance goals that are used to determine yearly progress. It links what is to be accomplished that year with the budget request using program activity structures. A team has already begun work to develop a system for tracking and reporting on the performance elements and to look for opportunities to further integrate GPRA with budget and accounting activities. *The Department stategic plan is on pages 10-11.*

Rig Fishing Info

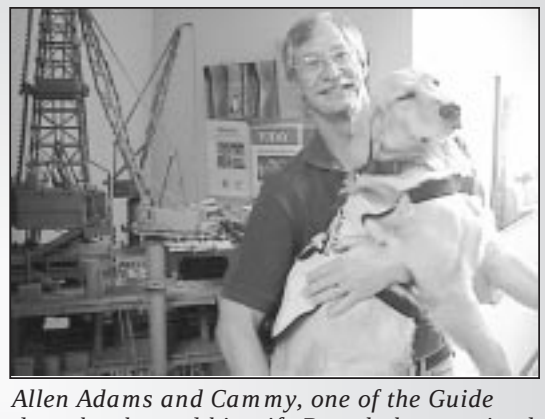
ADDITIONAL INFORMATION and copies of these marine fishing guides are available from: Rigs-to-Reefs Coordinator, Louisiana Department of Wildlife & Fisheries, P.O. Box 98000, Baton Rouge, LA 70898. Telephone (504) 765-2375. Or from the Alabama Department of Conservation and Natural Resources, Marine Resources Division, P.O. Drawer 458, Gulf Shores, AL 36547. Telephone (334) 968-7576. Or from Mr. Villere Reggio, Outdoor Recreation Planner, Minerals Management Service, 1201 Elmwood Park Blvd., New Orleans, LA 70123. Telephone (504) 736-2780.

CORRECTION: *The Year of the Ocean* feature on pages 16-17 of the Dec/Jan issue of *People, Land and Water* stated that over the last 20 years "less than 2 percent" of the oil produced offshore was spilled. The sentence should have said "less than .001 percent."

Allen Adams Guides His Dogs

Walter Bonora

Allen Adams and his wife Beverly like to consider themselves doers, rather than givers. Allen regularly donates plasma, keeps his neighborhood clean by picking up litter, and he and his wife also raise guide dogs for Guide Dogs of America. "Guide dogs provide comfort, protection, and companionship for the blind," says Louise Henderson, manager of the puppy program for Guide Dogs of America. "But before we train them we need people like Allen to raise and socialize them."



Allen Adams and Cammy, one of the Guide dogs that he and his wife Beverly have trained.

Adams, a physical scientist with MMS in Camarillo, California, was attracted to this program by its worthiness and because he found the puppies to be fun, lovable, loyal, and intelligent. "We're on our second dog and its great having them around," Allen says, "It's not so great giving them up though, but it's for an important cause."

Guide Dogs of America in Sylmar, California, breeds the puppies then finds puppy raisers who care for the dogs until they are a year old. "We don't have the staff or facilities for that kind of work," says Henderson. "Once the dogs are returned to us, they are put through an intensive training program. Only about half of the dogs eventually become guide dogs. Not all of our animals adapt to the pressure and responsibility of guiding the blind so those dogs that don't make the cut are returned to foster homes."

Allen and Beverly take the time and effort to housebreak a dog and give it a loving environment so that when the dog is returned, the trainers have a well-adjusted animal. In return for their efforts, the Adams take comfort in knowing that their puppy raising ultimately contributes to the care and needs of the blind.

Office of Insular Affairs

Allen P. Stayman, Director
David S. North, Bureau Editor

Immigration Panel Urges Action on Marianas' Immigration Problems

At left, Director Allen P. Stayman signs a technical assistance grant with Governor Pedro P. Tenorio, the newly elected chief executive of the government of the Northern Mariana Islands. Photo by Debbie Subera, OIA

As its last official act, the Congressionally-created, bi-partisan Commission on Immigration Reform called for urgent attention to the "serious immigration problems" of the U.S. Commonwealth of the Northern Mariana Islands (CNMI).

The Commission found that the CNMI's immigration system, with its massive foreign worker program, "is antithetical to the principles that are at the core of the U.S. immigration policy," supports an unsustainable local economy, "perpetuates a dependence on government employment for the indigenous [U.S. citizen] population," and leads to the abuse of foreign workers who are easily exploited.

Noting that temporary alien workers account for 90 percent of the CNMI's private sector workforce, the Commission's report said "only a few countries, and no democratic society, have similar immigration policies. The closest equivalent is Kuwait." Agreeing with several Administration proposals, the Commission urged the phasing-out (in three to five years) of the current CNMI provisions permitting the admission of foreign contract workers in exploitive occupations, e.g. garment workers, household workers, bar girls, and other categories in which exploitation is common.

It also called for vigorous enforcement to address the common CNMI phenomena of the 'payless payday,' and "developing a system to control the frequently exorbitant recruitment fees paid by contract workers which can constitute a year's or more wages." The report stated: "Having embarked... on an immigration program that has brought thousands of foreign contract workers to the Commonwealth, some now living there for many years, the CNMI must come to grips with the presence of long-term residents who have no political rights. Providing an avenue to permanent residence for those who meet the standard in U.S. immigration law would help redress this situation. As such, this provision is consistent with U.S. traditions regarding immigration—that is, that is better to have aliens entering as permanent residents and becoming citizens rather than becoming a long-term underclass."

The CNMI, a group of 14 islands north of Guam in the Western Pacific, became a U.S. territory in 1976. From 1947, the islands had been a part of a United Nations trust territory and under U.S. administration. The law extending U.S. sovereignty delegated to the CNMI the authority to set its own immigration and minimum wage policies; however, Congress specifically reserved the right to extend U.S. policies once the United Nations terminated the Trust Territory. Interior's Office of Insular Affairs (OIA) serves as the Executive Branch's liaison to the CNMI.

The Reagan, Bush, and Clinton administrations and many U.S. senators and representatives have called for reform of these policies. In its most recent report to Congress, the Administration described the negative impact of these policies, including the importation of an estimated 35,000 foreign workers (more than half the population) into a U.S. citizen community with 14 percent unemployment and 35 percent poverty rates. Other problems cited by the OIA and the Administration are: the circumvention of U.S. trade laws by Asian garment manufacturers who deprive U.S. taxpayers of $150 million each year in tariffs, and a continuing pattern of abuse of foreign workers resulting in demonstrations by those workers and protests by foreign governments about the treatment of their workers on U.S. soil.

Though the Commission generally agreed with Administration's position on the CNMI problem, it proposed a different tactical approach, recommending that the Administration try to negotiate a settlement with the newly elected CNMI political leadership. OIA **Director Allen P. Stayman** said the Administration would attempt to negotiate a resolution but pointed out that the Reagan, Bush, and Clinton administrations have tried to follow this route for more than a dozen years without success. The Commission recommended that if these efforts are not successful, then the Congress should extend the U.S. Immigration and Nationality Act to these islands. The Administration agrees.

The Commission report focused on the immigration aspects of the broader set of labor, immigration, and law enforcement problems that have caused the Clinton Administration to recommend the extension of the normal immigration and wage-hour laws to the islands, and to change the current trade laws. The latter permit the Asian owned garment factories to use low-paid Asian labor and low-cost Asian fabrics to assemble garments in the CNMI that are regarded, for customs purposes, as made in the U.S.A. These garment factories pay only the most limited federal taxes, and ship 100 percent of their production to the U.S. Mainland without regard to the customs duties or the quotas that would be applied had the assembly been done by the same owners and workers in Asia.

"These provisions allow the importation of some $800 million a year worth of clothes (at wholesale prices), and deprives U.S. firms of hundreds of millions of dollars worth of sales and profits and U.S. workers of thousands of jobs," Stayman declared. "On the other hand, were the garments to be manufactured in Asia, there would be fully $150 million in customs duties coming to the U.S. Treasury." Not only is this industry circumventing the General Note 3(a) trade privileges extended to U.S. territories—a privilege intended to create jobs for U.S. citizens—it is foolish of the U.S. to allow these continuing losses which keep getting larger," Stayman said. "The CNMI's transplanted Asian garment industry is growing at the rate of 45 percent a year according to Commerce Department data."

The Commission examined the CNMI situation at the request of OIA, which did not seek to influence the report, and did not see that text until the Commission had finished its work. The Commission asked OIA to release its CNMI report to Congress, which OIA did.

VIEWPOINT: Setting the Record Straight

NPS's $143 Million Commitment to Minority Businesses

Ben Saji

The article "Working with America: Helping Small Businesses Grow" in *People Land & Water*, Nov. 1997, Pg. 8, was misleading. It gave the impression that Bureau of Reclamation, U.S. Fish and Wildlife Service, and U.S. Geological Survey were the leading contributors to the Interior's Small and Disadvantaged Business Program. Ralph Rausch, director of the Office of Small and Disadvantaged Business Utilization did allow that "all bureaus contributed" to Interior's award of 60 percent of its acquisition contracts dollars to small businesses, but, said Rausch, the listed ones excelled and were the major contributors to this important initiative.

Not so. The National Park Service's outstanding performance and major accomplishments cannot be eclipsed simply by praising the performances of others. For example, NPS awards of $142.5 million to small businesses stick out as obviously greater than BOR's $126.8 million, and greater than the combined accomplishments of USGS and USFWS at $35.7 and $67.5 million respectively.

NPS's $21.6 million in awards to minority businesses, as well as its $12.5 million awards to the Section 8(a) businesses were also greater in each of those categories than were the combined awards of USGS and USFWS to those same initiatives, not to mention NPS's $652,692 awards to large minority prime contractors and $7.97 million to women owned businesses—in one year, not spread over several years and the total claimed each year, as were the awards of other bureaus.

With those impressive numbers one wonders why NPS was relegated to the status of an 'also ran'. One answer is that the NPS is a victim of its own success. From the program's first resurgence in 1979 to the present, NPS set the Government-wide standard for excellence in this important initiative. Due to the loss through relocation of the program coordinator, the vagaries of reinvention (in which the NPS also set the pace for implementation), the harsh realities of severe construction budget cuts, and the transitory uncertainties brought on by the Supreme Court's Decision in *Adarand v. Pena*, NPS slipped a couple of percentage points from its more stellar performances of the recent past. Our hats are off to those bureaus OSDBU chose to laud. They have obviously caught the vision, and we believe the program is better for them having done so. It is not sour grapes that we say NPS has never been in competition with the other bureaus; they quite simply aren't competitive enough. Our regions choose rather to compete with each other. That is a bracing contest. For example, using OSDBU's incomplete calculations, NPS-DSC alone contributed more to the Minority Business Program than did either USFWS's or USGS's entire bureau. And when all NPS's transactions are factored in, the Pacific West Region contributed as much to 8(a) businesses as USGS's total bureau, and the small National Capital Region contributed nearly as much.

NPS can, without tongue in cheek, credit the director and the entire WASO and Field Directorate, its program managers, **Ben Saji** and **Marcela Urrutia**, and all of its Regional and Service Centers BUDS staff: **Lorna Gunning** and **Linda Maiden** in the Northeast Region, **Tom McConnell** in the National Capital Region, **JoAnne Grove** and **Sheila Jordan** at Harpers Ferry Center, **Glenda Catanach** in the Denver Service Center, **Larry Downing**, **Dianne Mitchell** and **Charles Vicari** in the Southeast Region, **Ramon Cintron** and **Tom Forsyth** in the Intermountain Region, **Debra Imhoff** in the Midwest Region, **Leo R. Guillory**, **Phillip Pantoja** and **Beth Faudreee** in the Pacific West, and **Robert Weiser** in the Alaska Region.

As to the future, NPS managers have gone on record stating we not only will continue our present leading performance but will regain the incomparable status of the recent past. In this competitive atmosphere, woodshed persuasion is so seldom necessary to realize such lofty ambitions that few NPS managers remember where the shed is. As to the recognition we need, NPS management is already in the process of rewarding our most prodigious performers. We are like that.

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